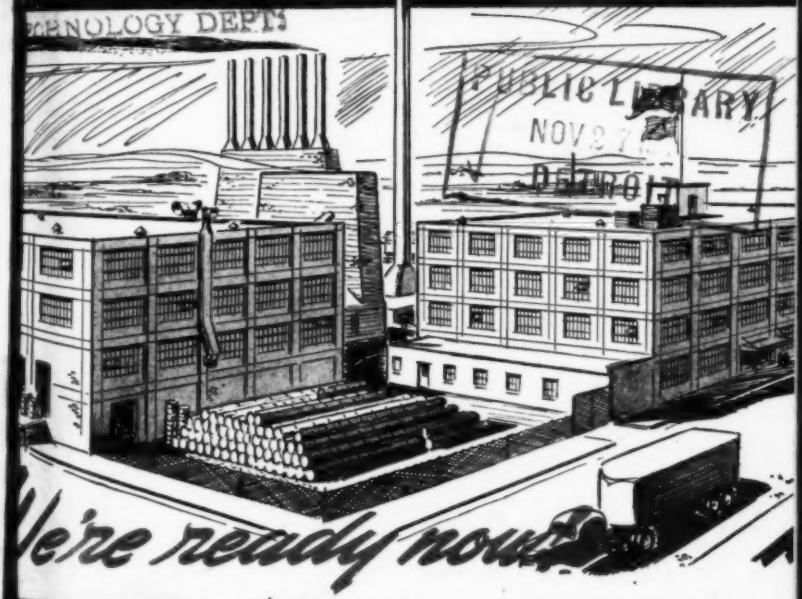
Industrial FINISHING



We're ready now!

YES, our entire organization—plant, laboratories, personnel—is ready to cope with reconversion finishing problems. Let us solve YOUR reconversion headaches by supplying a specific finishing material for your specific product—so that "with the right finish—you'll finish right."

LILLY Varnish Company

INDIANAPOLIS, INDIANA

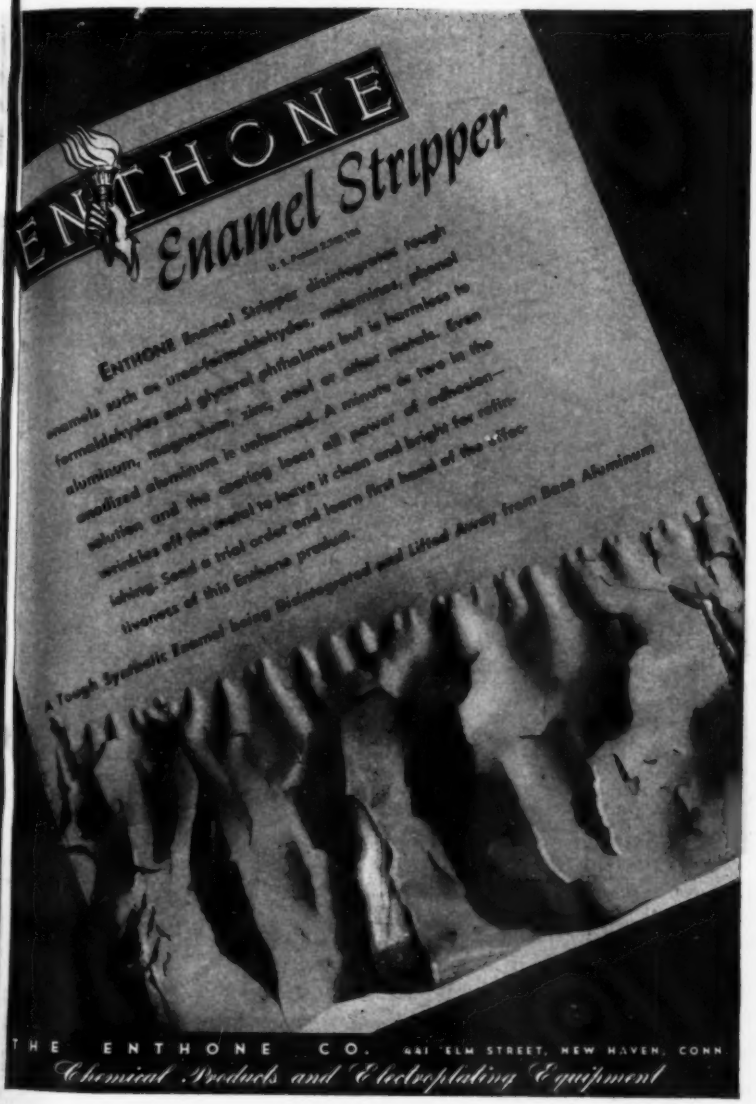
R v.21 N1944-01945

A Masterpiece of Beauty from an Old Master

IN HAMMERLIN ROXALIN has engineered a novel textured enamel. Its unique beauty, which imparts a polychromatic value in one coat, relieves the monotony of large, flat surfaces . . . gives an illusion of weight to light materials. Hammerlin minimizes metal defects . . . helps conceal spot welds, and heat cures to a tough-wear resistant film that keeps clean and dust free in service. Write for descriptive bulletin, "How to Use Hammerlin."

Tech

ROXALIN *Flexible* FINISHES
INCORPORATED
ELIZABETH, F ● NEW JERSEY


ENTHONE
Enamel Stripper
ENTHONE Enamel Stripper disintegrates tough enamels such as urea-formaldehydes, melamines, phenol formaldehydes and glyceryl phthalates but is harmless to aluminum, magnesium, zinc, steel or other metals. Even anodized aluminum is unharmed. A minute or two in the solution and the coating loses all power of adhesion—wrinkles off the metal to leave it clean and bright for refinishing. Send a trial order and learn first hand of the effectiveness of this Enthone product.
A Tough Synthetic Enamel being Disintegrated and Lifted Away from Base Aluminum
THE ENTHONE CO. 441 ELM STREET, NEW HAVEN, CONN.
Chemical Products and Electroplating Equipment

SANDING PADS FOR EVERY TYPE OF FINISHING

Instantly Detachable

1 The "Easy" provides an INSTANT SNAP ACTION method for attaching the correct type sanding or rubbing pad to fit the job.

2 Sanding pads are available for working curved or flat surfaces on Wet or Dry application.

Easy RECIPROCATING ELECTRIC SANDER

EXTREME SIMPLICITY of the "EASY" detachable bottom plate provides an instant snap-action method for attaching the correct type sanding pad to fit the job. This means increased operating efficiency.

With the EASY Sander even your inexperienced help, men or women, will turn out more and better work than two or three hand operators. For sanding, rubbing, polishing, "feather-edging," and de-burring of all materials.

FOR WET OR DRY WORK— CURVED OR FLAT SURFACES

The straight-line reciprocating action of the "EASY" mechanically duplicates the approved back-and-forth motion of hand block finishing. Fast, short stroke, floating sanding pad, and universal drive, prevent gouging, swirls, laps, or heating of the work.

WRITE NOW FOR COMPLETE DETAILS

DETROIT SURFACING MACHINE CO.

7434 W. DAVISON DETROIT 4, MICH.

TWENTY-FIRST YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor E. A. DOSCH, Assoc. Editor

Vol. XXI, No. 1 NOVEMBER, 1944 $2.00 a Year

Contents of This Issue

Letters from Readers 5
Planning Your Finish for Postwar Products 26
Industrial White Enamels 36
Spray Painting Troubles—Causes and Remedies 42
A Film is Born 56
Cause and Prevention of Bleeding and Lifting 76
Questions and Answers 84
Materials; Supplies; Equipment 92
Editorial 100
Random Comment on the Industrial Scene 106
"Classified Advertising" Section 114
Index to Advertisers 116
Booklets; Catalogs; Circulars 117

MacDermid Announces New Appointments 8
J. O. Ross Engineering Corp. Man Promoted to Major 8
Aircraft Fabric Rot-Proofing Process Available to Industry 34
M. H. Corbin Becomes V. P. of Standard Varnish Works 34
What Fire Extinguishers to Use 52
DuPont Announces Appointments 74
Glidden Co. Announces Important Promotions 74
Lambe Advanced in Kellogg Division of A. B. S. Co. 74
Major Clinton Returns to U. S. 74
Large Plastic Articles 74
Lacquers That Require Less Solvents 82
J. A. Proven Vice-President of Sterling Tool Products Co. 90
DeVilbiss Wins Third Army-Navy Award 90
McCloskey Varnish Co. Builds New Plant in Portland, Ore. 104
M. M. & Mfg. Co. Acquires Mid-States Gummed Paper Co. 113
Paint Chemist's Thanksgiving 114

Owned and Published by
Practical Publications, Inc., 1142 N. Meridian Street, Indianapolis 4, Ind.
Eastern Representative: C. A. Larson, 254 West 31st St., New York 1, N. Y.; Phone Penna. 6-9049

New Items? YES...

PLENTY OF THEM!!!

Tell us your finishing problems and we will tell you about the new items we have developed to solve them.

V. J. DOLAN & COMPANY, INC.

Manufacturers "Unquestionable Quality"
Industrial Finishes

1830-32 NORTH LARAMIE AVENUE **CHICAGO, ILL.**

I. C. D. FORMULA NINE

NON-INFLAMMABLE « *wax free* REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

EASY TO APPLY—NO AFTER-CLEANING

ORDER TRIAL GALLON AT DRUM PRICE

I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings . . costs less to use . . saves time, labor and material.

SPECIALTY COATINGS—I. C. D. Labs. have specialized in the formulation and manufacture of non-inflammable coatings and substitute finishes. If you have a tough coating or finishing problem send in your specifications, finishing schedule and requirements. Immediate action and a prompt reply promised.

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.

347 MADISON AVE. NEW YORK 17, N. Y.

Letters from Readers

High Gloss Finish for Wood Caskets

For years we have manufactured a nice line of hardwood caskets, of various woods. It has been necessary for us to hand-rub our caskets to get the proper luster and appearance. One of our traveling salesmen has just reported having seen a casket, made by a competitor, that has far more gloss and a better looking finish on it than we have. He was told that this finish was put on by some sort of lighting appliance—and by this process, this special treatment takes the place of the hand rubbing feature and gives it this high gloss and the smoothness of glass.

Having seen many references to new features in finishing, we are writing you to ask if you can furnish us with the name and address of the firm who would be able to supply such equipment if and when the war is over.

We assure you of our great appreciation in this connection, provided you can make a guess at just what we are trying to ask for.—Z. CASKET CO.

Perhaps your competitor is using a portable rubbing or buffing machine. Portable rubbing machines, driven electrically or by compressed air, are advertised from time to time in this magazine. Full page advertisements of both appeared in Sept. issue.—ED.

Smoothing Masonite Edges

T. N. Company's query on "Smoothing Masonite Edges," and your reply on page 96 of the October number recalls some of my experience with that material on the fans exhausting air from the sandblasting, painting and drying departments of a drum-cleaning plant which I engineered. The fan blades, as originally furnished by the manufacturer, were roughly "rounded" on the leading edge. These edges quickly picked up lint and other fibrous material or—in the case of the sandblast room unit—wore away quickly.

We worked the blades down to a formed "leading edge," sandpapering them carefully and sealing the smoothed edges with a quick-drying sealer, sanding again, and applying a second sealer coat. With this treatment we found that the blades stood up well, and moved 5% more air than formerly.—ELTON STERRETT.

Painting Zinc Surfaces

I understand that in one of the articles in INDUSTRIAL FINISHING, which I do not have, there was an article referring to "Painting Zinc Surfaces."

Among the treatments were copper sulfate immersion, potassium permanganate-sodium hydroxide immersion, copper sulfate-ammonium hydroxide-sodium cyanide immersion and phosphate treatments. The last one was for galvanized iron.

I would be grateful to you if you would send me these articles, or formulas for their uses, as they are our greatest problem in our metal finishing department. Any other information available pertaining to applying finishes on zinc, aluminum or ferrous metals will be appreciated.—F. R. CORP.

You are probably referring to Mr. H. E. Van Siclen's article, "Zinc Surfaces Will Hold Paint If . . . .", which appears in July 1944 issue of INDUSTRIAL FINISHING. We are sending you a copy of this.—ED.

To Roller-Coat Moldings

We are very anxious to learn the names of manufacturers of roll feed machines for painting small wood moldings. Can you help us?—S. C. Co. (Millwork).

We have no knowledge of such machines other than those made for roll-painting slats for venetian blinds. Names and addresses of a few manufacturers of these machines are being sent to you.—ED.

I. F. Articles Click

Would it be possible to borrow pictures of the Glenn L. Martin plant, which appeared in your story on page 22 of August 1944 issue of INDUSTRIAL FINISHING?

Inasmuch as our materials are used on the B-26s, we want to run an article in our November-December issue now being assembled. You have

done such an excellent job of covering this painting operation that we would like to extract portions of your story if you approve.—FINISH MFR.

Box Car Floors Finished?

We have noticed that a recent issue of your publication carried an item pointing out that railroads are beginning to use paint or varnish on the floors of box cars, to seal them against the absorption of grease or odors which may seriously damage such commodities as sugar and flour in sacks, which are sometimes loaded in a warm condition into the cars.

In checking with Canadian railroads we find that this practice has not been adopted here, and we are wondering if you could refer us to one or two American railroads who have done some work along these lines. We would like to get in touch with them and ask them a few questions relative to their experiences leading to the use of paint or varnish for this purpose and the results of the adoption of this plan.—P. & V.

We understand that the Great Northern Ry. is finishing the complete interiors of plywood box cars, see illustrated article on page 74 of October 1944 issue. Can readers tell us of any others?—ED.

Dipping; Tumbling

At present we are dipping or spraying, and air-drying all of our wood items. Since we are tooling up for a new item composed of small wood parts requiring a high lustrous finish, tumble finishing has been recommended.

Feeling that INDUSTRIAL FINISHING magazine could give us the facts, we are writing for the fundamental information . . . J. A. Co.

The tumbling process can be used to coat various small products and parts, but it doesn't give you a highly lustrous finish like spraying or dipping. —ED.

Durable Finishes Wanted for Steel Products

We are vitally interested in starting a development program in our plant to find satisfactory metal coated materials which have a salt-spray resistance in excess of 60 hours. We realize that cadmium plating is capable of doing this job; however, this is the material we are trying to replace. The coating would be on steel and would be used in the automotive industry.

Can you suggest a group of metal finishes which will pass the above mentioned test, or tell us how we can obtain such a list?—A. F. Co.

We are submitting names of several companies who probably have one or more products suitable for your requirements.—ED.

Tumbling Process

The September 1944 issue of INDUSTRIAL FINISHING carries a reference to the tumbling process for painting small finished wood turnings. Would it be possible for you to send us a reprint of this article, or give reference to the month of its original publication? We would also appreciate a list of manufacturers making this type of equipment.—A. B. Co. (Bronzed Baby Shoes).

Referring to your "Letters from Readers" in the September edition of INDUSTRIAL FINISHING Magazine, page 5, col. 1, kindly send us full information concerning the tumble painting of small wood parts.—T. A. Co.

A reprint of the "Tumble Finishing" article is being sent to you.—ED.

I. F. Articles in Demand

We notice in your September issue of INDUSTRIAL FINISHING, an excellent article on "Water Wash Spray Booths." This article refers to one in April 1942 issue, a copy of which we do not have in our library. The title of the 1942 article is "Avoid Wasting Material by Using Correct Spray Setup." We would appreciate it very much if you would send us a reprint of this article.—N. E. Co.

We have no reprints of the article but are sending you one set of pages torn from an old copy of the magazine.—ED.

"Painting Steel Ships" Interests Army Officer

Having been in the paint manufacturing business for 20 years prior to my accepting a commission in the Army, I naturally continued my subscription to INDUSTRIAL FINISHING, and look forward each month to this very wonderful publication.

At the present time, part of my work consists of the purchasing of finishing materials for the Army's navy as operated by the Army Transportation Corps.

In the October issue of INDUSTRIAL FINISHING there is an article entitled

When SWORDS are beaten back into PLOWSHARES—

Then you will want PERFECTION FLAT FINISHES

Unless you've seen or used Perfection Synthetic Flat Finishes, you can't imagine their advantages over conventional flats. The flattening process is accomplished by Synthetic Chemistry instead of stearates. The process gives an absolutely clear, full bodied, rubbed effect finish which will dull rub or polish—no haze after rubbing—will force dry or air dry—no printing—waterproof—liquor-proof—durable and economical—full range of sheens.

PERFECTION PAINT & COLOR CO.
INDIANAPOLIS, INDIANA

"Painting Steel Ships" which is very interesting. I notice by the Editor's note that the first part of this article appeared some months ago in this magazine. Evidently I overlooked this first article because I cannot locate it. If it is possible for you to send me this part of the article, I will appreciate it.—MAJOR X.

The copy of the magazine containing the first part of the article is being sent to you, Major.—ED.

Rubbing Machines Wanted

In your September issue the article, "Rubbing Finishes on Wood Furniture," is very interesting to us. We do quite a lot of refinishing but so far have been doing all of our rubbing by hand. Would you kindly send us names and addresses of where we could buy rubbing machines; also a flexible-shaft rubbing machine?—L. F. Co.

Information supplied.—ED.

Wood Toy Finishing

On page 5 of September issue of INDUSTRIAL FINISHING Magazine, we notice the second letter wherein W. S. inquires about a color finish for toys. We are also interested in this same problem. Would you be kind enough to furnish us with a duplicate set of information as sent to the other subscriber?—F. S. Co.

Please send your magazine and any information you may have on finishing toys. We are interested in dipping, and any information you could send us will be appreciated.—M. TOY CO.

An informative article on this subject will soon be published in INDUSTRIAL FINISHING.—ED.

One-Way Windows

Relative to H. Co's. inquiry about one-way windows (Oct. issue, page 6) will say that the following firms make transparent mirrors: Rawson & Evans Co., Washington & Halsted St., Chicago, Ill., and Semon Bache & Co., 640 Greenwich, New York, N. Y.

These mirrors are made with a very thin coat of silver and protected with a coat of clear lacquer or clear varnish, probably a dammar varnish. They are not considered very good when subjected to sun rays and weather.

Probably Venetian blinds would be more satisfactory—or a new screen, now on the market, which is made of flat wire and set on an angle similar to shutters or Venetian blinds.—A. H.

MacDermid Announces New Appointments

Mr. A. J. MacDermid, President of MacDermid, Inc., Waterbury, Conn., announces the following appointments:

Mr. Harold Leever as Vice President of the company.

Mr. Arthur McNeil as Technical Sales Engineer for Southern New England. Mr. McNeil was formerly with the Contract Plating Co. and Bridgeport Thermostat, as finishing superintendent.

Mr. Arthur Logozzo, who formerly serviced Southern New England, has been transferred to Hartford to cover Northern Connecticut and parts of Massachusetts, formerly covered by the late A. J. Maynard.

J. O. Ross Eng. Corp. Man Promoted to Major

The J. O. Ross Engineering Corp. recently received news that John Hoffman, formerly assistant manager of its Portland, Oregon office, has been promoted to the rank of major. Major Hoffman, who served throughout the Italian Campaign with an outfit attached to the Fighting French, has had the added honor of being decorated with the famous Croix de Guerre.

STILLE-YOUNG

★ LABORATORY ANALYSIS
★ PRACTICAL EXPERIENCE
★ TRAINED SERVICE REPRESENTATIVES

Can be of help to you in solving finishing problems whether of production or maintenance.

Lacquers Fillers Stains

Enamels Paints

☆

Stille-Young

MANUFACTURERS: LACQUERS · FILLERS · STAINS · ENAMELS · PAINTS

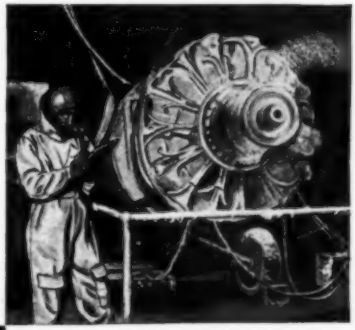
2300 North Ashland Avenue • Chicago 14, Illinois

Do you know...?

Q. During cold-tests, airplane motors must stand temperatures of:

☐ 32 below zero ☐ 80 below zero
☐ 100 below zero

A. Temperatures must often be dropped to 100 degrees below zero—a tape was needed to keep cracks and seams sealed despite temperature variations. Permacel moisture-proof cloth tape (Utilitape) solved this problem perfectly. In one case, Permacel was found in good condition after a whole year of use.



Q. Traveling salesmen may one day get in touch with home-office by:

☐ Radar ☐ Two-way radio
☐ Telepathy

A. Two-way radio. Wartime experience has proved that two-way communication equipment can be compact, inexpensive, highly efficient. In painting radio equipment, Permacel paper masking tape is widely used today. Insures clear-cut color separations, good electrical contacts at masked sections.

Q. Substance in gas masks which filters poisonous chemicals is:

☐ Oxygen ☐ Hydrogen
☐ Activated charcoal

A. Activated charcoal. To prevent poison gas from entering the mask except through the filter, joints and junctures are securely taped with Permacel cloth tape (Jonflex). This Permacel tape will find many post-war applications in industry—wherever a tough, pliable sealer-and-holder is required.

Quiz on timely production short-cuts—No. 8

Q. The title of this widely discussed little booklet refers to:

☐ Electricity ☐ New-type wrench
☐ Pressure-sensitive tape

A. Pressure-sensitive tape. This free booklet (see offer below) shows how Permacel Industrial Tapes speed production and cut costs in identifying materials, simplifying assembly, speeding production, improving product finishing, modernizing packaging and cutting maintenance work and costs.

Q. In making lithographic plates, negatives are held in place by:

☐ Rubber cement ☐ Tape
☐ Clamps

A. With Permacel's companion, Texcel cellophane tape. This durable, quick-sticking tape also saves time and cuts cost in attaching work orders to assemblies, in identifying different grades of materials, and in mending torn letters and blueprints.

FREE BOOKLET, "A New Tool for Industry," shows how Permacel Tapes save time, work, money, at every stage of a product's progress through a plant—illustrates and lists many practical applications that may prove helpful in your business during conversion and in post-war production. Write for your copy today: Dept. IF-8, Industrial Tape Corporation, New Brunswick, N. J. And remember: our research laboratories are always available to you for development of special tapes to meet special needs.

Permacel

Industrial Tapes

INDUSTRIAL TAPE CORPORATION

New Brunswick, N. J.

Makers of Texcel Tape

"PERMACEL" REG. U. S. PAT. OFF.

HARDWOOD FINISHING HEADQUARTERS

SINCE 1888

SANDPAPER Cabinet 9-in.x11-in., No. 0 to No. 4/0, No. ½, No. 1, No. 1½, No. 2, No. 2½, No. 3

Behlen Flint, Behr-Manning, Carborundum	Ream	Quire
Behlen Finishing	Ream	Quire
Garnet Cabinet	Ream	Quire
Behlen Cabinet	Ream	Quire
Garnet Finishing	Ream	Quire

SCRAPERS Cabinet No. 29, 3-in. x 6-in. ..... Each

SIZES

Burnishing Clay	1-Lb. Jar
Red and Blue (Hein's)	1-Lb. Jar
French	1-Lb. Jar

OIL SIZE

Economy Metal	Gal.	Qts.	Pts.
Hein's Yellow Oil	Gal.	Qts.	Pts.
Le Franc Mixtion	Gal.	Qts.	Pts.
Noble & Hoare's	Gal.	Qts.	Pts.

SPONGES

Carriage	Bales	10-Lb.	Lb.
Decorator's	Bales	10-Lb.	Lb.
Reef	Bales	10-Lb.	Lb.
Sheep's Wool, Large	Bales	10-Lb.	Lb.
Sheep's Wool, Medium	Bales	10-Lb.	Lb.

STAINS—ANILINE (Ask for Color Card and Chart)

BLACK 5 Lbs., 1 Lb., ½ Lb., ¼ Lb.
Nigrosine No. 7, Alcohol Soluble
Nigrosine No. 5, Water Soluble
Nigrosine No. 49, Oil Soluble

BLUE
Ultramarine No. 61, Alcohol Soluble
Dark Blue No. 39, Oil Soluble
Methylene No. 69, Water Soluble

BROWN
Perfect No. 46, Alcohol Soluble
Bismark No. 4, Water and Alcohol Soluble
Bismark No. 34, Oil Soluble

GRAY
Silver No. 100, Alcohol Soluble
Silver No. 18, Water Soluble

GREEN
Olive No. 72, Alcohol and Water Soluble
Emerald No. 75, Alcohol and Water Soluble
Dark Lump No. 40, Oil Soluble

MAHOGANY
Antique Brown No. 24, Alcohol Soluble
Brownish No. 27, Water Soluble
Red No. 35, Oil Soluble

MAPLE
Light Yellow No. 14, Alcohol Soluble
Antique No. 203, Water Soluble
Reddish No. 110, Oil Soluble

OAK
Early English No. 116, Alcohol Soluble
Fumed No. 38, Water Soluble
Golden No. 56 Cathedral

ORANGE — RED — ROSEWOOD — VIOLET
All Shades, Soluble in Water, Oil and Alcohol

WALNUT
Dark No. 60, Alcohol Soluble
American No. 13, Water Soluble
Light No. 50, Oil Soluble

STAINS Liquid Oil, Water and Alcohol—5-Gal., 1-Gal., ¼-Gal., ⅛-Gal.
Complete Line Non-Grain Raising, Etc.

STEEL WOOL IN ROLLS AND PADS

No. 4/0, No. 3/0, No. 2/0, No. 0, No. 1, No. 2, No. 3
25-Lbs.
10-Lbs.
1-Lb.

"SURE TOUCH" STICKS FOR REPAIRING SCRATCHES
Mahogany — Maple — Walnut.....Dozen.....Each

SHELLAC

Pure White, 5-lb. Cut Shellac—
.....Bbl.....5-gal.....1-gal.....¼-gal.....⅛-gal.
Pure Orange, 5-lb. Cut Shellac—
.....Bbl.....5-gal.....1-gal.....¼-gal.....⅛-gal.
Also 4, 6, 8 and 10-lb. Cut—
.....Bbl.....5-gal.....1-gal.....¼-gal.....⅛-gal.
French Varnish, White, Brown and Black

SHELLAC In Flake Form
White and Orange Bags.....25-lb.....10-lb.....Less

Illustrated catalogue of complete finishing materials that will take care of your finishing requirements.

H. Behlen & Bro., Inc., 10 Christopher St., N. Y. C. 14

DEPEND ON PEDIGREE

FINISHES

FOR EVERY REQUIREMENT

Write for Details

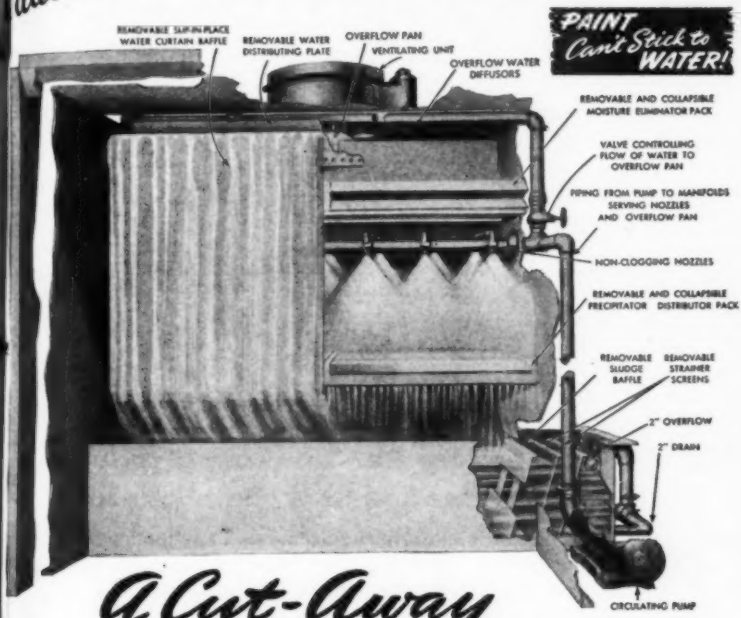
Whatever your particular problem on product finishing . . . postwar or current . . . you may rely on the performance of these outstanding finishes. Baking or air-drying . . . for spraying, dipping or brushing . . . appropriate colors. Send for FREE 24-page book, "Pedigree Products."

The PRODUCT WITH A PEDIGREE — THE P·D·GEORGE CO.

THE P. D. GEORGE CO.

SAINT LOUIS, U. S. A.

Paasche Water Wash Airfinishing Booths


REMOVABLE SURFACE WATER CURTAIN BAFFLE
REMOVABLE WATER DISTRIBUTING PLATE
OVERFLOW PAN
VENTILATING UNIT
OVERFLOW WATER DIFFUSORS
PAINT Can't Stick to WATER!
REMOVABLE AND COLLAPSIBLE MOISTURE ELIMINATOR PACK
VALVE CONTROLLING FLOW OF WATER TO OVERFLOW PAN
PIPING FROM PUMP TO MANIFOLDS SERVING NOZZLES AND OVERFLOW PAN
NON-CLOGGING NOZZLES
REMOVABLE AND COLLAPSIBLE PRECIPITATOR DISTRIBUTOR PACK
REMOVABLE SLUDGE BAFFLE
REMOVABLE STRAINER SCREENS
2" OVERFLOW
2" DRAIN
CIRCULATING PUMP

A Cut-Away Worth Studying

FOR BETTER RESULTS IN YOUR FINISHING DEPT.

Note here, some of the reasons why Paasche Water Wash Booths save cleaning time—conserve paint—and reduce fire hazards.

Exhausting air, bearing overspray, is drawn against water curtains, and solids are washed down into settling tank. Any paint particles remaining on precipitator pack are washed down by high velocity sprays of water. These packs direct the air uniformly through air expansion precipitating chamber and also prevent surging in the settling tank.

Note, too, removable and collapsible moisture eliminator pack, overflow water diffusers, and other features designed to prevent solids from being discharged to outside atmosphere and to minimize fire hazards.

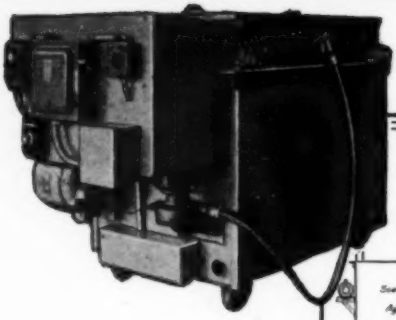
And remember, it's not the first cost but the completely installed cost, that counts. For detailed information on Water Booths and other Paasche Airpainting Equipment, write

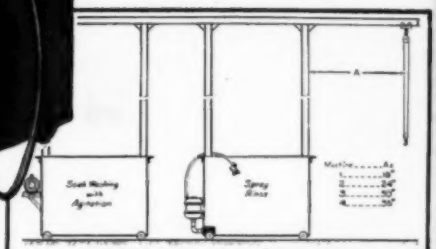
PAASCHE AIRBRUSH CO.
1917 Diversey Parkway . Chicago 14, Ill.

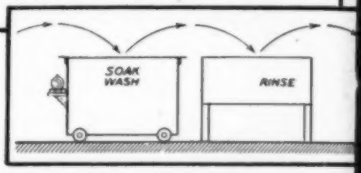
Paasche Airbrush (Canada) Ltd.
110 Elm Street, Toronto, Ontario

Paasche AIRPAINTING EQUIPMENT

Manual, automatic and special airpainting equipment, airfinishing booths, pressure regulators, airconditioners for compressed air lines, air dusters and strippers.







Above: Two machines, one for agitation soak wash, other for spray rinse.

Right: One machine for agitation soak wash in Emulso-Dip (Magnusol) solution, plus cold water spray rinse over a trough.

Use Any Cleaning Set-Up Your Products Require—and Get Speedier, Better Results

You can meet any requirements in sequence of cleaning operations as well as insuring faster, improved cleaning results when you equip with the new

MAGNUS ALL-PURPOSE PORTABLE METAL CLEANING MACHINE

It can be used on any metal, on any size and shape of object, with any cleaning material. Individual units can be used for soaking and/or spraying for washing and rinsing. Used alone or in suitable combination with other units or machines, practically any combination of treatments can be provided.

This machine provides a unique "swishing" type of agitation obtainable only when the *work* is moved in and out of the cleaning solution at high speed.

Investigate this new machine. It is available in a wide range of sizes at prices from $300 to $800 per unit depending on size and type of heating provided.

Bulletin 3600
describes this unique machine, its applications and its time and labor-saving possibilities. It will pay you to write for a copy now.

Magnus

MAGNUS CHEMICAL COMPANY · 40 SOUTH AVENUE · GARWOOD, N. J.

CLEANERS·METHODS·MACHINES

Cleans quickly— SAVES 60%

SUN SPIRITS

Cuts metal cleaning costs 60% . . . quickly removes oily film

In a plant manufacturing machine parts, production-hampering delays were found to be the direct result of their metal cleaning operations.

Oily film remained on parts. The metal cleaner in use did not clean thoroughly.

A Sun Engineer, called in on the problem, advised that with Sun Spirits, not only could troublesome delays be eliminated, but considerable savings were possible.

A switch to Sun Spirits proved his statement. Now, oily residue is dislodged quickly and thoroughly. The minute pores of the metal are penetrated . . . parts are sparkling clean. Time is saved, too, because Sun Spirits requires no mixing or heating.

A 60% saving in costs was also effected by the change . . . and no complaints have been received from the operators.

This is typical of the excellent performance Sun Spirits is giving today, in many plants. It can help you attain the same efficiency, and economy in your plant. For more details, write for your free copy of "Case Histories of Cleaning Up War Parts."

SUN OIL COMPANY • Philadelphia 3, Pa.

Sponsors of the Sunoco News Voice of the Air—Lowell Thomas

DETROIT PUBLIC LIBRARY

SUNOCO **SUN INDUSTRIAL PRODUCTS**

HELPING INDUSTRY HELP AMERICA

Improved Product Finishes

Result of Intensive Research and Development

WALKER product finishes, for war and civilian use, are the result of intensive research and development by our chemists, working in modernly-equipped laboratories. In addition, Walker Product Finishes have established themselves as items of outstanding merit and achievement through actual application on surfaces of all kinds in the regular channels of production.

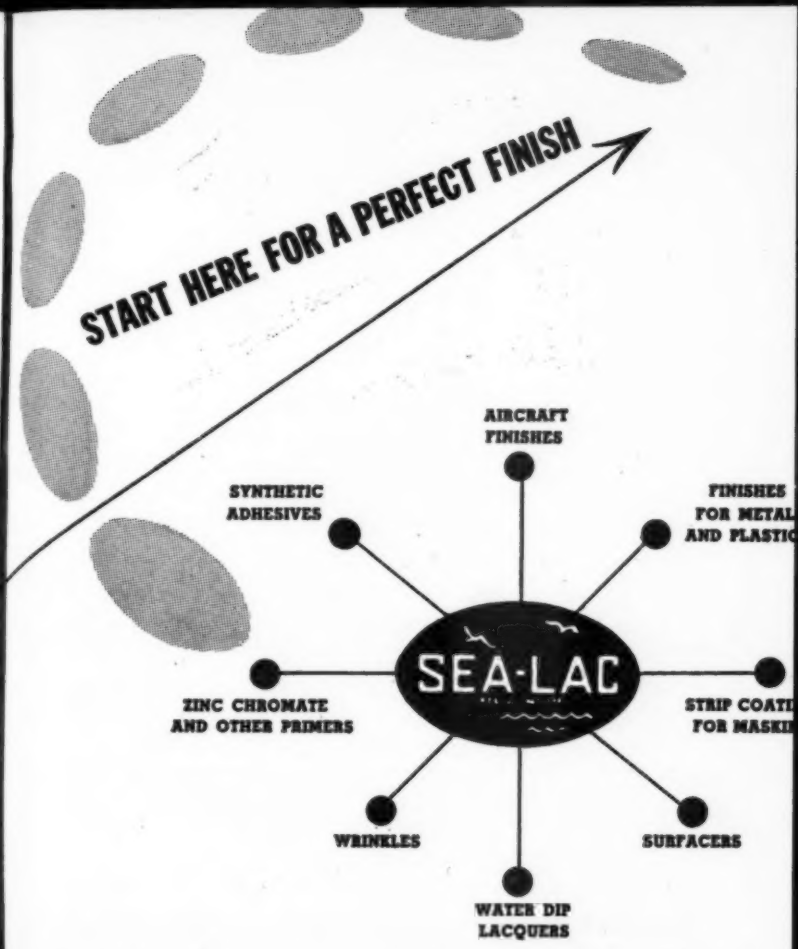
Such a source of supply then, eliminates all risk and customers are assured of materials that will meet their requirements. For primers, surfacers, lacquers, synthetics, wrinkles or specification finishes—investigate the Walker line. Do not hesitate to write us and tell us what your product-finishes' problem or requirement is. Our laboratories, research chemists and technical men are at your service.

"Call on Walker"

H. V. WALKER CO.

Elizabeth, New Jersey

MODERN PRODUCTION FINISHES



What kind of finish do you require? For what kind of application? Chances are we can make it available to you at a moment's notice. Our files are literally bulging with more formulas for finishes than you can shake a sheaf of specs at. And if the finish you need is non-existent, we'll make it exist—in our laboratory. Either way, you'll get the finish you want, without delay.

DURALAC CHEMICAL CORPORATION

LISTER AVENUE, NEWARK 5, N. J.

LESS WAITING

with LACQUER

NITROCELLULOSE LACQUER dries quickly . . . allows you to spray and ship without delay. It is easy to apply . . . forms a hard, durable coating which retains its good appearance through years of service. When repairs are necessary, it is easy to patch and easy to match.

Lacquer is the most satisfactory general purpose finish for industrial use. Investigate its many advantages for your products.

Nitrocellulose Lacquer—the postwar finish on today's war-products.

CSC makes no lacquers or thinners but supplies solvents and plasticizers to manufacturers of protective coatings.

CSC

COMMERCIAL SOLVENTS *Corporation*

17 East 42nd Street, New York 17, N. Y.

BAFFLED by new FINISH BAKING PROBLEMS?

then . . . CALL A DESPATCH ENGINEER FOR HELP

4 New Despatch Finish Baking Systems!

These newly developed finish baking systems have distinctive performance characteristics for superior to prewar "all purpose" baking methods.

Despatch
CONVECT-O-BAKE
•
SURG-BAKE
•
CONVECT-O-RAY
•
INFRA-RED

Call for a Despatch Engineer Today

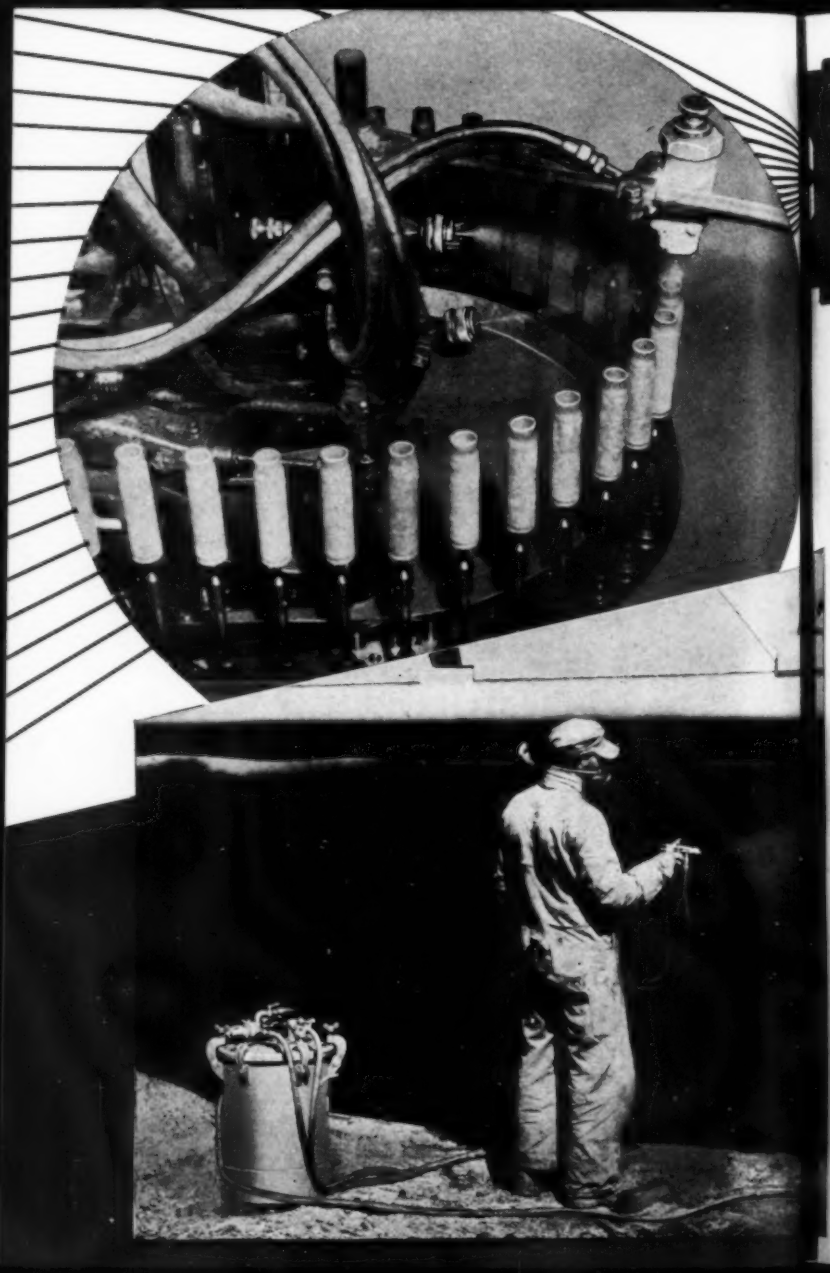
It's hard to find your own answers to your company's finish baking problems, because there are so many new technical points which must be considered. And the answers must all be *right*.

That's why a *specialist* in finishing baking methods and equipment, a Despatch engineer, can give you the help you need.

ASSURES *BEST* FINISH BAKING RESULTS

A Despatch engineer will check every detail of your baking requirements, from A to Z. Then he will recommend the finish baking system whose performance characteristics are *specially* adapted to your job. It will "fit in" right and give the *best possible results* in less time and at less cost.

DESPATCH OVEN COMPANY MINNEAPOLIS



NO PART TOO SMALL—
NO PRODUCT TOO BIG

to get th[illegible] advant[illegible]s of hig[illegible]
high-eff[illegible]cy DeVilb[illegible] Spray Syst[illegible]

Products as big [illegible] house or pa[illegible] larger than you
—corrugated sh[illegible] 12 feet wi[illegible] intricate shapes
half-track chass[illegible] can have e[illegible]ent paint protectio[illegible]
the wide range o[illegible]Vilbiss[illegible]y Systems that fit the[illegible]

Two examples of t[illegible]oduct range are illustr[illegible]
left. The Dura Compa[illegible] coated 20 mm. cartridge
both *inside and out* at th[illegible]ing speed of *2000 per*
with a DeVilbiss Automatic[illegible]
The Kansas City Structural Steel Co[illegible]
a tight, seaworthy finish to big, husky landing craft—t
fastest way—by spray painting with DeVilbiss Equipme[illegible]

Whether you are looking for faster production of fightin[illegible]
equipment or economical output of your postwar civilian goods
a modern DeVilbiss System can contribute many advantages
to the speed, efficiency and economy of your operations.

THE DeVILBISS COMPANY • TOLEDO 1, OHIO
Canadian Plant: WINDSOR, ONTARIO

DE VILBISS
Spray Systems

SPRAY EQUIPMENT • EXHAUST SYSTEMS
AIR COMPRESSORS • HOSE AND CONNECTIONS

Planning Your Finish for Postwar Products

Manufacturers of Civilian Products, here are some timely ideas, suggestions and facts about planning your postwar paint job or product finishes. The author relates interesting experiences and gives logical reasons for recommending that finishes be based on quality material plus quality application rather than on cheapness.

BY RAYMOND C. ADAMS
Superintendent
The Southern Paint Products Co.

WITH THE end of the war in Europe in sight, most manufacturers are thinking about or actually making preparations for reconversion to their normal peace time operations. In industries' plans for tomorrow, paint unquestionably will play an important role. There are very few industries throughout our United States that don't, in some manner or another, depend on or use paint in their successful operations. Right off hand I can not think of a single such industry that doesn't, even though in some cases it is only to the extent of providing a protective or decorative coating for the buildings or machinery.

There is not a definite formula or composition for paint, but rather it is a complex mixture of many complex chemicals about which relatively little is known. Few people realize this fact. Probably because paint is so common to our everyday life, we think it common and don't appreciate its complexity. This attitude is often times evident in manufacturing concerns where paint plays an important part in the usefulness and acceptability of their product by the general public.

Often large manufacturing firms have competent engineering or designing departments that keep them astride of the times. However, how many of them have departments set aside that study the merits of their paint finish and keep astride of the developments of paint manufacture? There are not many, but notice if you will the high-quality finished articles that come from those industries.

To the end that postwar industrial finishes will be manufactured and applied in the highest quality, I wish to direct the following thoughts to the executives, superintendents, and finishing foremen upon whose shoulders stands the responsibility of properly finishing their manufactured articles.

Will Product Paint Jobs Be of High Quality?

With most finished products, as for example automobiles, furniture, household appliances, etc., the first property in which the general public is interested is the general appearance. In selling any of these articles you will notice that one

of the salesman's strongest arguments is the beauty and quality of the painted surface. This is only natural, for with most any item, the better its appearance, the greater its value. For that matter, in purchasing any of the above mentioned articles, the general public has very little knowledge that enables it to differentiate between the finer more technical properties of two or more similar items.

In purchasing an automobile, for example, few people inquire as to the horsepower of the motor. For that matter, how many motorists even know what horsepower means or how it is derived? If our lives depended on it, how many of us could put together an unassembled radio? When we buy our electric refrigerator, how many of us understand the principles of refrigeration? How many people know the name, or for that matter can even pronounce it, of the refrigerant used in their refrigerator? Of course the answer to all of these questions is, "very few." *Mainly we are interested in performance; secondly appearance.*

Will Price Competition Again Beat Down Quality of Finish?

Mr. Manufacturer, let me ask you: "Is it your intention to use the best possible finish on your products?" If your answer is, "Yes," do you feel that prior to the war you used the best? More than likely it is your intention to use the highest quality finish that your selling price will warrant. After all you are governed largely by competition. In many industries the cost of the finish (including labor and material) is quite a large percentage of the selling price. Too often the manufactured article is considered to be in a certain price bracket, and won't sell for any more. As such, the quality of the finish must be governed accordingly.

In highly competitive markets, where a few cents cost one way or another means a great deal, the finish is the first component of the article to be cut. This is indeed unfortunate. There are only rare exceptions to my rule governing the use of paint, which reads as follows: "The article in question, regardless of how cheaply priced or inferior in construction, if it is to be painted commands the highest quality paint and the highest quality of paint application."

Quality of Paint, Plus Quality of Application

As stated in the rule, there are two factors that control the quality of a painted surface: 1) the quality of the paint, and 2) the quality of application. We all understand what is meant by the quality of the paint. In the paint field, as in other industries, there are many raw materials from which to choose. In an average industrial finish there are from six to ten raw materials which, when properly combined, produce the desired paint. Each of these six to ten raw materials have a definite function or purpose in the paint. The function or purpose of each of these raw materials can be found in the gloss, adhesion, color, flow, light stability, etc., properties of the paint. For each of these raw materials there are usually several cheaper substitutes. The quality of the finished paint is thus governed by degree of substitution of inferior raw materials.

Naturally the users of paint or industrial finishes have no control over the quality of the paint except in cases where they do some mixing prior to application. Unfor-

tunately this is often times where trouble originates. Preferably the paint should be made in such a manner that it doesn't require the addition of anything else prior to application.

The Perfect Paint for A Specified Purpose

In the perfect paint there is an exact percentage of each raw material that gives the best results. If the user takes it upon himself to add some additional material, or an excess of one of the same raw materials originally used, he upsets the entire formula. He can easily ruin it. In this connection it is a good investment for any concern to have a thoroughly competent finishing foreman. Pay a sufficiently high salary to command the services of such a person. It might increase the pay roll $20 or $30 a week, but it will pay dividends of many times that amount.

No discussion about the quality of paint would be complete without mentioning that every paint is formulated for use under certain conditions, and often times it won't work under other circumstances. For example, stain can't be used as a finish coat, or vice versa. The best house paint made just won't work as a floor enamel. These are, of course, obvious examples, but in fine finishing there are examples that aren't so obvious, but the resultant failure of the finishes are comparable.

Again emphasis is placed on having a good finishing foreman.

Paint Application Troubles

The other factor that greatly influences the quality of a painted surface is the quality of application. This method of expression needs an explanation. As stated earlier, paint is a complex mixture of complex chemicals about which relatively little is known. Often a particular type of paint, under certain conditions, works fine. On other days, under what appear to be the same conditions, all kinds of trouble is encountered. Sometimes we are able to offer an explanation. Usually we just scratch our head and wonder.

By quality of application is meant all factors that influence the final paint film, except those relating to its composition. That is certainly definite isn't it? At any rate I will try to explain it as follows: As a chemist and a salesman it has been my privilege to visit the finishing rooms of many users of industrial finishes. As such I have worked on many industrial finishing problems where I have had an intimate knowledge of finishing room conditions to correlate in my laboratory experimentation. Frankly, in the majority of cases, even with the same wood or metal, finishing material, spraying air pressure, etc., I have been unable to duplicate plant conditions in the laboratory.

A Blushing Lacquer Incident That Had Me Worried

Possibly you have had a similar experience that you just couldn't explain. I remember clearly one that I had. In Evansville, Indiana, there was a furniture plant a few blocks from our lacquer plant. Being in somewhat of a valley and located right on the Ohio River, the humidity in Evansville is always high. This particular furniture plant, having had considerable trouble in the past with lacquer blushing, used one of our clear lacquers that was definitely in the non-blushing class. One day they called up and wanted to get some retarder. The lacquer

was blushing badly. I jumped in my car and took along five gallons of a high quality lacquer retarder. Unfortunately, even when used in excessive amounts, it didn't retard the blushing. I was stumped. I didn't know what to recommend. What in my opinion should work, didn't.

The only alternative that I had was to draw some of the lacquer out of the drum and go back to the laboratory and do some experimenting. This I did. Since the humidity in the finishing room was the same as in the lab, I naturally expected the same results. I sprayed lacquer on all kinds of surfaces the rest of the day and couldn't get even one panel to blush. I was at my wits end. I knew the furniture plant was depending on me, but I wasn't getting anywhere. Next day things started brightening up. I began getting some blushing. Finally I compounded a retardant that really did the trick. Triumphantly I returned to the furniture plant with my newly concocted retardant only to find that they were'nt having any trouble that day and were not even using any retarder. You figure it out. I can't.

Some Things We Know; Other Things Puzzle Us

All of which boils down to the fact that conditions of the surface, atmosphere, operator, type of application, etc., do govern the quality of the finish. Experience and research have taught us certain fundamentals. We know that a metallic surface must be free from oil, grease or rust if good paint adhesion is to be expected. The same is true in the wood industry. Filler and oil stain must be wiped clean and allowed to dry thoroughly. We know that a soft undercoat and hard top coat induces checking. Likewise, we know that temperature and humidity affect the drying of oxidizing finishes. These rules and many others, which experience has taught us, are well known but we have only scratched the surface. The wide-awake user of industrial finishes will recognize this fact and thus study the conditions of application to the end that the quality of the finish will be greatly improved.

Ordinarily the quality of a finish is in direct proportion to its cost. Naturally everyone wants to have the best possible finish. The selling price of the finished article determines largely how much money can be spent on the finish. Generally the selling price is figured low—too low for a good finish. The following example is typical of how this works.

A Decision That Involves Finish Cost on Cabinet

In the manufacture of a radio cabinet that sells to the radio manufacturer for $10.00, two competitive cabinet plants have approximately the same cost. Their lumber, labor, finishing material, and overhead costs are pretty much the same. Needless to say, their selling price is the same. One of the plants wants to get more business. What can it do? It has two alternatives: 1) Turn out the same cabinet at a lower price; 2) turn out a better cabinet at the same price. After much work and effort it decides that purchases and plant efficiency are at a maximum. The cost can't be lowered. That eliminates the first alternative. The scope of the second possibility is soon found to be somewhat limited. The design of the cabinet can't be changed to a more attractive one. The radio manufac-

turer decides on the design. The quality of the lumber can't be improved, the best being used. The construction is perfect; no room for improvement there. Finally it boils down to the finish. Yes, there is certainly room for improvement here. Practically every cabinet complaint has been due to a finish failure.

An Extra Cost of 50 Cents Puts on a Lasting Quality Finish

After thoroughly studying and testing, it is found that by using a higher priced material, an extra finish coat, and a little extra labor that a truly outstanding finish can be had. This costs an additional 50c per cabinet. The proposition is put to the customer that for an additional 50c a greatly improved finish can be supplied that adds value to the cabinet, far in excess of the extra money. The suggestion meets with a chilly reception. The cabinet manufacturer is advised that $10.00, is the maximum price for that style cabinet; that if 50c were added, by the time various percentages were applied the finished radio would jump from $69.50 to the $79.50 bracket. In that new bracket it just wouldn't sell. Of course the cabinet manufacturer can't afford to absorb the extra cost because even though it is only 50c, it amounts to 5% of the selling price, and more often than not, 5% amounts to the difference between profit and loss, so the public suffers.

I Believe That Most People Will Pay More for Quality

Mr. Radio Manufacturer (or Mr. Mfr. in general) if you operate under such an erroneous idea that the general public won't pay more money for a better finish, then let's get you straight right now. If you will run the following test you will be convinced. Market your conventional radio at $69.50. At the same time market another radio that is exactly the same, except that it is finished in the best possible manner with the highest quality finishes. Ask $79.50 for this radio but, in your sales talk, point out that even though the design and radio mechanisms are the same, the finish will last as long as the radio itself and that during all those years its fine appearance will be an asset to any living room. Explain, of course, that the $69.50 radio has only the conventional finish that will deteriorate long before the radio mechanism, and will be a living room eyesore until such a time as the family budget warrants the purchase of a new one. If you run such a test you will find that almost 100% of the people will pay the extra $10.00. It would certainly be worth it, even though the actual extra finishing cost might amount to less than $1.00.

Typical Product Paint Jobs That Show Lack of Quality

It is a well known joke that the carpenter's house usually is in need of repair, or that the painter's home needs painting worse than any other house in the neighborhood. For this reason, having been in the formulating, manufacturing, or selling end of the paint business all my life, I have always striven to make my personal possessions symbolic of my work. A recent check however seemed to warrant putting me alongside the carpenter and painter. The following is a result of the survey:

1) My home, which is of brick construction painted white, on close inspection shows small checks in the paint. This will get worse in

time. (Please believe me. The paint is not mine. I bought the house one year after it was built.) The dark blue shutters show worse check marks and very bad fading. The front door is unsightly. It is badly checked.

2) The interior finishes, although not bad, are not good. There doesn't seem to be the proper selection of paint for the particular use. For example, the off white woodwork is painted with a semi-gloss wall enamel. For walls it is fairly good, but on the woodwork it is so soft that it clearly shows children's finger marks, and when washed with a mild cleaning solution to remove them, the paint comes right off. In the bathroom the ceiling and side walls above the tile are painted with flat wall paint which simply won't stand up under the conditions as well as a gloss wall enamel.

3) The 1940 automobile began to check badly on the hood and top about two months after it was purchased. The manufacturer has twice recoated these parts, which is simply a process of filling in the cracks but not preventing them from further checking. About a year ago I had it completely repainted but it doesn't look any too presentable at present.

4) The lacquered finish on the 1937 model radio is in very poor condition. It deteriorated rapidly the first year. The filler has turned gray and there are bad checks in the lacquer. This radio cabinet was manufactured by one of the largest cabinet plants in the United States. The finishing materials were supplied by one of the best known suppliers of furniture finishes.

5) The condition of the finish on all my furniture in general is most certainly not satisfactory, considering that none of it is over seven years old.

6) The 3-year old enameled metal porch furniture shows rust spots. You can imagine its appearance.

7) The baked enameled surface of the 5-year old washing machine has certainly seen better days. It's completely off in places.

8) The children's toys (none of which are over four years old) hardly even show signs of ever having been painted.

9) The enamel on the Venetian blinds chips from slightest blow.

A similar parallel to the condition of painted surfaces in my home can be found in the majority of homes throughout the country. To many of you these conditions may not seem in the least unusual. It is true, of course, that painted surfaces will not last indefinitely.

Paint Job Compared to Other Essentials of Products

All of us have experienced many paint failures in our every day life. We have accustomed ourselves to the short-coming of painted surfaces to such an extent that too many of us don't expect anything better. Such is not the case with me. In my opinion the majority of the painted surfaces in the hands of the general public today (before the war) are definitely inferior to what they could be, and as such are a black mark on the paint industry. The fact that is so alarming to me is that in each of the above mentioned paint failures the item which is painted is in perfectly good condition. Only the paint has failed. For example:

1) The construction of the house appears to be in just as good a condition as the day it was built. There has been no break down or

repair of the building. Even the plastered ceilings, which so often develop cracks in a new house, are in perfect condition. Now that the inside and outside have been repainted it certainly looks fine. I am only hoping that the checked surfaces won't cause too much trouble in the future.

2) The 1940 automobile has been driven 90,000 miles. Not a single part of the motor has been replaced. The only repair expense has been for tires, spark plugs, batteries, brakes and other parts for which there is a well known limited life. It's just the paint that's really bad.

3) The upholstery and sturdiness of construction of the various pieces of furniture are almost perfect. Only the finish shows its age.

4) The porch furniture, as far as performing its function as furniture, will last many years (assuming of course that it is kept painted).

5) The washing machine still performs the weekly washing without the slightest indication that it is wearing out. Only one roll has been replaced.

6) The toys, after receiving only two coats of enamel look and function as they did when new. Actually they will serve the new daughter as well as if they were new.

7) As for the Venetian blinds it seems as if the maid just can't get it through her head that every time she carelessly knocks them about, enamel flys off.

In my home there is only one article on which the original finish has held up. This is on the 5-year old electric refrigerator. Its baked enamel has withstood a great deal of abuse and washing. Today it looks just as good as the day I first saw it on the show room floor. There is absolutely no reason why the other painted surfaces shouldn't compare favorably as well. Actually, from the above illustrations it might seem that other industries, with their long-lasting products, challenge the paint industry for equal performance. You will notice that I said this *might* be the case. Please rest assured that it isn't. The truth of the matter is that the users of industrial and other type finishes, sacrifice quality for economy.

Let's Have Real Quality, Especially in Paint Application

Yes, Mr. User of Finishing Materials; whether you be an executive, superintendent or finishing foreman, you are partly (and I might even say largely) to blame for the poor quality of painted surfaces in the hands of the general public today. Think over your own situation.

As far as economy gained by price is concerned, you can feel sure that you get exactly what you pay for. The paint field is extremely competitive. The days of the large margin of profit are gone forever.

Your greatest economy is that gained through application. Overhead and labor costs, in most finishing rooms, are large in comparison to the cost of the finishing material. By such practices as eliminating one finishing coat by making one take the place of two, etc., you are able to save not only on the cost of application but also on the decrease in the amount of material used. Sometimes these short cuts and savings are all right, but usually not.

The question might be raised that if what has been said is true, and the users of finishing materials do sacrifice quality for econ-

Durable Paint Coats Require CLEAN-CONDITIONED SURFACES

DEOXIDINES have long been recognized as ideal metal cleaners, their unusual merits as perfect conditioners have often been overlooked.

There is a grade of DEOXIDINE to meet your specifications for cleaning and conditioning.

The efficiency of DEOXIDINE is already well established: if you have not tried DEOXIDINE, the speed, economy, simplicity and effectiveness of its processes are easily demonstrated in your own plant and under your own working conditions.

Avoid Paint Failures

DEOXIDINE cleans all metals, except zinc and cadmium, completely and destroys visible or invisible chemicals which, if permitted to remain, would cause premature paint failures—at the same time minutely etching and conditioning the surface, thus providing a most satisfactory bond for paint coats. In addition to properly preparing aluminum for painting, DEOXIDINE cleans it most acceptably in preparation for "Alrok"* coatings.

Deoxidines for Varied Uses

There are types of DEOXIDINE for application with brushes, by immersion in suitable tanks or by spraying in power washers. Grades also of each of these types that adapt them to the removal of much or little rust and oil. There are processes worked out for the use of DEOXIDINE in large or small production and for big or little work.

The experience of ACP Laboratories and Technicians is at your service to advise the DEOXIDINE best suited to your needs.

* Reg. T. M. Aluminum Co. of Am.

Manufacturers of Inhibitors & Metal Working Chemicals

AMERICAN CHEMICAL PAINT CO.

AMBLER ACP PENNA.

Note: West Coast Plants may address inquiries and orders for prompt delivery to Leon Finch, Ltd., 728 East 59th St., Los Angeles, Calif.

American Chemical Paint Co., Ambler, Pa.
Please send me general Technical Service Data Sheets on

☐ PEROLINE ☐ DEOXIDINE

*Name*_____ *Title*_____

*Company*_____

*Address*_____

B-6

omy, "Why doesn't the paint industry do something about it by lending suggestions and criticisms?" That's a good question and I think I know the answer. The selling of a paint customer is a hard job. It takes a long time and a great deal of effort to break in on a new account. After once getting the account the salesman does everything within his power to keep it. Generally speaking one good way to keep it is to be agreeable. By all means don't tell your customer that he is doing something wrong. That's an insult to his business judgment. Now if he asks for suggestions, that's different; but certainly don't suggest anything that costs more money.

Of course, that may not be a good excuse as to why the paint industry doesn't do something about improving quality. It can only be accomplished by close cooperation between the manufacturers and users of finishes. Let's all do our part.

Aircraft Fabric Rot-Proofing Process Available to Industry

Reflecting the patent pooling policy generally followed by American industry to facilitate war production, Roxalin Flexible Finishes, Inc., Elizabeth, N. J., owners of a patented process for rot-proofing aircraft fabrics, announces that free licenses are being granted on request to aircraft manufacturers who are required by the Navy to employ this process. A long program of tests by the government and commercial aircraft lines have shown that this fabric-finishing method extends the life of planes operating in tropical climates where heat and humidity stimulate fungi growth causing rapid deterioration of fabric-covered wing and tail surfaces.

Tried out for two years by Pan American Airways and American Export Airlines, the process was declared to provide an effective solution to this problem. As a result of these tests, confirmed by the Bureau of Aeronautics and the National Bureau of Standards, the Navy Department recently issued a specification to the aircraft industry making it mandatory by a method covered in the patent held by Roxalin. It is expected that similar action will be taken shortly by the War Department with respect to Army planes.

The principles embodied in the method described in the Navy Department specifications have been available commercially for several years in the Emycel Fabric Finishing System, owned by Roxalin. This is a spray process which employs a high-solids high-viscosity material, reduced to sprayable low viscosity by heating. On application it deposits full solids content without waste of solvent thinners, thus providing adequate coverage and smoothness in the minimum number of coats.

M. H. Corbin Becomes V. P. of Standard Varnish Works

At a recent meeting of the Board of Directors, Mr. M. H. Corbin was elected a Director of the Standard Varnish Works and was appointed Vice President in charge of sales of both the New York and Chicago divisions.

Mr. Corbin has been associated with Standard Varnish Works since 1937 in a technical and sales capacity, and

M. H. Corbin is now Vice President in Charge of Sales of both N. Y. and Chicago Divisions of Standard Varnish Works.

for many years has been closely identified with the development of organic finishes for industrial application. For the past two years he has been Manager of Industrial Sales of the New York plant.

A graduate chemical engineer from Lehigh University, Mr. Corbin has held various important positions in the technical and sales branches of the paint, varnish and lacquer industry. He holds several patents; and is author of numerous technical articles on the subject of organic finishes.

Don't Waste Time on Removing Problems

Put them up to us!

If your product has a finish that is difficult to remove, let us give you our recommendations. We have formulated special removers for many types of finishes, including paint, varnish, lacquer, enamel, shellac and synthetics. Among these is a remover especially suited to industrial use because it eliminates fire risk and requires no wash-up after the finish is stripped.

Our standard removers—Lingerwett and Wonder-Paste are the largest selling removers among both industrial concerns and professional painters.

Tell us the type of finish you wish to remove and we will advise the proper procedure and type of remover to use.

Our removers are sold by leading distributors of paint products throughout the country.

WILSON-IMPERIAL COMPANY

Dept. E-114, 115 Chestnut St., Newark 5, N. J.

INDUSTRIAL *White Enamels*

Much research, experimenting and development effort have gone before, to make possible the production of durable white bake enamels that will be available to manufacturers of postwar civilian products.

BY MILTON A. GLASER

TWENTY-FIVE YEARS AGO white enamels that were intended to remain white after application were usually made from zinc oxide, a high grade of dammar resin, and possibly a small amount of some castor oil. At this stage in the development of white surface coatings, no other gums or pigments were available to provide a paint that would not turn yellow some time later. White enamels made from the constituents just mentioned suffered from a lack of good hiding qualities and lack of permanency.

With the introduction of relatively light-fast lithopones—then the bright stable titanium dioxide and zinc sulfide pigments — the paint chemist had at his command materials that might eliminate the draw-backs of previously available white dry colors. Today we have several excellent white pigments. Some are characterized by their fine whiteness, some by their high opacity, and others by their effective resistance to chalking on outside exposure.

Practically all the titanium pigments of our day are inert in paints and do not yellow upon exposure to light. Many white enamels now contain zinc sulfide and at least a small proportion of zinc oxide. This latter is useful in promoting the wetting of pigments by the vehicle, in obtaining good gloss, and as a filter to prevent ultra-violet light from decomposing the paint film.

Alkyd Resins Produced and Used in White Enamels

Commercial production of alkyd resins furnished the first practical vehicle or binder for the manufacture of high quality whites. Enamels made from the proper titanium dioxide, zinc oxide and properly reacted alkyd resins were distinguished by their durability, adhesion, resistance to yellowing, resistance to water, high hiding power, and excellent working properties. Such enamels generally suffered from the following drawbacks: *(Continued page 38)*

A new, extremely effective, economical MAC DERMID INC. alkaline solution for swiftly and thoroughly stripping zinc from basis metal leaving stripped metal bright and free from smut • Will not embrittle the steel nor etch the polished surface • Simple immersion process removes cronak and other dichromate treatments while stripping zinc • Excellent for removal of hot dip galvanized as well as electro-deposited zinc.

MAC DERMID
INCORPORATED
WATERBURY 88, CONNECTICUT

WRITE ONE OF THESE SERVICE ORGANIZATIONS FOR FREE DEMONSTRATION

NEW YORK	CHICAGO	DETROIT	CLEVELAND	ST LOUIS	TORONTO-CAN
Udylite Corp (L I City)	Udylite Corp Geo A Stutz Mfg Co	Udylite Corp Wagner Bros	Udylite Corp McGean Chem Co	LaSalle Incorporated	Clark Industrial Supplies Co

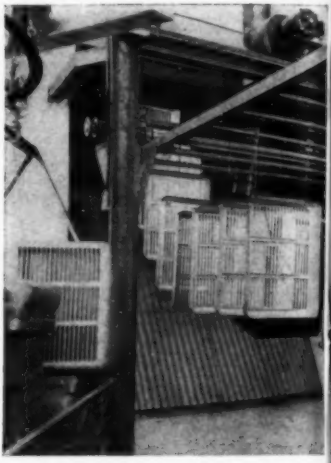
1) Relatively long drying or baking schedules.
2) The relative softness of the resultant films.
3) Poor alkali resistance.

When the first urea-formaldehyde resins suitable for surface coatings were marketed, they could be baked out to give water-white films of porcelain-like hardness. By themselves, however, they were found to be extremely brittle and lacking in adhesion to metallic surfaces. Early attempts to plasticize these films with the oils and the chemical plasticizers used in nitrocellulose lacquers proved futile. Alkyd resins were tried as plasticizers. It was learned that the same resins that made up the vehicle of an excellent air-drying or baking enamel were incompatible with these new urea-formaldehyde products. Poor package stability and low gloss enamels would result from such formulations.

Urea-Formaldehyde Resins Improved White Bake Enamels

Eventually, resin chemists discovered how to impart compatibility with urea-formaldehyde resins into the alkyd resin molecule. These findings initiated the golden era of white baking enamels. At last the products finisher could be assured of a white finish of excellent hardness, durability, fair alkali resistance, and one that would not yellow even after years of service. These finishes could be baked in 30 to 60 minutes at 225° to 300°F. The response to these so-called alkyd-urea white enamels was immediate and enthusiastic, and the older types of white finishes for industrial products were largely supplanted.

Research laboratories, spurred on by these successes, continued their investigations of new chemi-



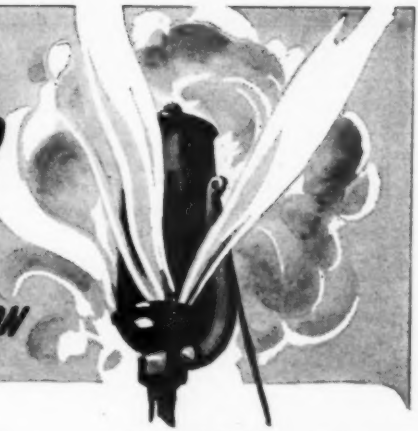
cal raw materials which might be used in resins, and of new methods of reacting these resins so as to obtain the most desirable products. New resin manufacturing equipment was designed, installed, used for a while, and then scrapped as further improvements in design and structural materials were discovered.

The paint manufacturer who had had the foresight to endow a well-manned, well-equipped resin research section in his laboratory now saw his judgment vindicated. He was able to provide tailor-made coatings for his customers. He knew the structure and properties of his resins and was able to utilize them most effectively in the solution of finishing problems that came up constantly.

More Demands for White Enamels of Great Durability

Demands arose, with increasing clamor, for white enamels that would dip satisfactorily, bake faster, be whiter, cover in one coat,

With the GO-AHEAD SIGNAL FOR CIVILIAN PRODUCTION



PREPRITE

Should be your Choice for

TREATING METAL BEFORE PAINTING

One of our wartime advancements has been the development of phosphate coatings for ferrous metal surfaces to provide increased corrosion resistance in conjunction with paint finishes. The Preprite phosphate coating process has received wide acceptance for military requirements and has proved itself to be thoroughly effective. It has resulted in considerable saving in time, labor, space and over-all cost due to its simplicity and fewer number of steps required. This process should be of interest to refrigerator manufacturers, auto body manufacturers, venetian blind manufacturers, office furniture manufacturers, water cooler manufacturers, deep freeze unit manufacturers and many others. WRITE FOR LITERATURE.

Other PREP PRODUCTS

for general treating of rust removal and metal treating before painting:

METALPREP . . . . GALVAPREP . . . . PREPWASH
ALUMIPREP . . . . PREP-PIK-L

NEILSON CHEMICAL CO.

Los Angeles, Calif. — 6562 Benson St., Detroit 7, Michigan — Windsor, Ont., Canada

adhere to various metal and plastic surfaces, and afford greater resistance to water, alkalies and grease. Manufacturers of refrigerators, washing machines, and metal cabinets, as well as hosts of others, found that alkyd-urea white enamels were ideal for their products. Stove manufacturers asked for and finally received a white enamel that could be used on their stoves and which would not discolor appreciably after long service. Venetian blind makers found these new enamels ideal for their products. Even fabricators of painted steel were able to make use of the new finishing materials for the production of certain pieces.

For the customers who found it necessary to use air-drying white enamels, eminently satisfactory and highly-durable finishes were provided. Fast-drying pure alkyds, combinations of alkyds with chlorinated rubber, maleic alkyd resins, polyvinyl resins, polystyrenes, polyacrylates, cellulose-base resins, and others furnished adequate vehicles. New developments in the field of synthetic resins for air-drying applications to give greater hardness and faster drying are in process. The marketing of these finishes awaits only the availability of new equipment and currently restricted raw materials.

White Baking Enamels of Tomorrow . . . and Today

The white baking enamels of tomorrow will be composed of improved plastic alkyd resins hardened by the addition of urea-formaldehyde or melamine-formaldehyde products. There will be an ever-increasing utilization of the one-coat or monobake method of applicatoin for most ware. Baking time will be shortened continually. Baking schedules of one minute at 400°F. are practical for some pieces. For most work, schedules having a time factor of ten minutes minimum would be considered sounder engineering. The ravages of weather, 5000 hours humidity exposure, hot soap solution, greases, fruit acids, mild alkalies, boiling water, and fatty acids will not cause these finishes to fail. The excellent adhesion and flexibility of these enamels will also permit the fabrication of steel after it has been coated.

The problems of today seem more pressing and more real than the problems of tomorrow—and naturally so. For those industries that use white baking enamels today, there have been developed adequate white enamels based on less critical raw materials. Such finishes have been tested and found to be unaffected by:

1) 3000 hours exposure in 100% relative humidity at 100°F.

2) 40 hours exposure to 5% soap solution at 160°F.

3) 12 hours exposure to boiling water.

4) Bending around a 1/16-in. mandrel.

5) 500 hours exposure in the National Carbon weatherometer.

6) 24 hours exposure to 2% hydrochloric acid, or 2% caustic soda, 2% tri-sodium phosphate or lactic acid, or uric acid, or citric acid.

A word of appreciation is due the users of the finishing materials discussed in this article. By their constant search for better paints (enamels) and better methods of painting, and by their willingness to test and retest and finally adopt improved organic coatings, the finishers of American products have furnished paint chemists with a great incentive for research, and the American people with finer, more attractive goods.

● Wherever there's a finished surface, there is a never-ending battle with corrosion, fumes and moisture. And long-lasting protection against these forces of wear and decay is given by Permite Ready-Mixed Aluminum Paints. Layer after layer of over-lapping aluminum flakes offer armor-like resistance to all destructive forces.

While at present the different types of Permite Aluminum Paint are limited, the complete line will become available as wartime restrictions are lifted.

For your wartime product finishing, we can meet your exact requirements from the complete line of Permite Industrial Finishes, formulated to government specifications. Included are clear and colored lacquers, zinc chromate primers, enamels, mixing varnishes, rust inhibitors, camouflage paints.

Quotations submitted promptly upon request.

ALUMINUM INDUSTRIES, Inc., Cincinnati 25, Ohio

The Permite Line of Industrial Finishes includes Permite Government Specification Paints for War Production Use.

PERMITE READY MIXED ALUMINUM PAINTS

Spray Painting Troubles -Causes and Remedies

THE DESIGN, manufacture, operation and maintenance of spray guns has an extensive background of long practical experience by manufacturers, service men, and many thousands of users in various industries. Spray guns are designed and made to operate easily and effectively and to perform satisfactorily in every detail. When or if a spray gun fails to operate or perform perfectly, there is a reason for it. There is one or more of several possible causes—and there are logical remedies for the trouble.

BY JAMES A. BEDE

In this article I am listing several of the more common spray gun troubles that may arise in connection with modern spray painting or finishing, all of which naturally involve spray gun operation and maintenance. For each trouble listed I am giving several possible causes and remedies for same. The information is based on practical experience and I believe that it will be of real interest and value to readers of this magazine.

Possible Causes	Suggested Remedies
SAGS	
1. Dirty air cap and fluid tip (distorted spray pattern).	1. Remove air cap and clean tip and cap carefully.
2. Gun stroked too close to the surface.	2. Stroke the gun 6 to 10-in. from surface.
3. Trigger not released at end of stroke (when stroke does not go beyond object).	3. Operator should release the trigger after every stroke.
4. Gun stroked at wrong angle to surface.	4. Gun should be stroked at right angles to surface.
5. Paint piled on too heavy.	5. Learn to calculate depth of wet film of paint.
6. Paint thinned out too much.	6. Add the correct amount of solvent by measure.
STREAKS	
1. Dirty air cap and fluid tip (distorted spray pattern).	1. Remove air cap and clean tip and cap carefully.
2. Insufficient or incorrect overlapping of strokes.	2. Follow the previous stroke accurately.
3. Gun stroked too rapidly ("dusting" of the paint).	3. Avoid "whipping." Take deliberate slow stroke.
4. Gun stroked at wrong angle to surface.	4. Gun should be stroked at right angles to surface.
5. Stroking too far from surface.	5. Stroke 6 to 10-in. from surface.

(Continued on page 44)

Protective . . .

Decorative . . .

Attractive . . .

WRINK-ALL

MADE from non-critical materials in fine, medium or course texture. A proven product that has received wide acceptance by manufacturers everywhere.

WRINK-ALL has all the characteristics of old type wrinkle in appearance, uniformity, application, baking schedules, etc. Works well under severe conditions in foul ovens. It is available in all shades and colors, and in unlimited quantities for immediate delivery.

NO PRIORITY REQUIRED

[*Order 5 gallons of Wrink-All today and give it a severe production test.*]

LACQUERS—THINNERS
METALLIZED FINISHES
SYNTHETICS AND
SPECIAL COATINGS
FOR ALL SURFACES

United Lacquer Mfg. Corp

General Offices, Laboratory, Factory: LINDEN, N. J.

NEW ENGLAND MFG. DIVISION, EVERETT, MASS.

BACK THE ATTACK! **BUY WAR BONDS!**

Possible Causes	Suggested Remedies
STREAKS (Continued)	
6. Too much air pressure.	6. Use least air pressure necessary.
7. Split spray.	7. Reduce fan adjustment or change air cap.
"ORANGE-PEEL"	
1. Paint not thinned out sufficiently.	1. Add the correct amount of solvent by measure.
2. Not depositing a wet coat.	2. Check solvent. Use correct speed and overlap of stroke.
3. Gun stroked too rapidly ("dusting" the paint).	3. Avoid "whipping." Take deliberate slow strokes.
4. Insufficient air pressure.	4. Increase air pressure or reduce fluid pressure.
5. Using wrong air cap.	5. Select correct air cap for the material and feed.
6. Gun stroked too far from the surface.	6. Stroke the gun 6 to 10-in. from surface.
7. Overspray striking a previously sprayed surface.	7. Spray detail parts first. End with a wet coat.
EXCESSIVE SPRAY FOG	
1. Too high air pressure.	1. Use least amount of compressed air necessary.
2. Spraying past surface of the product.	2. Release trigger when gun passes target.
3. Wrong air cap or fluid tip.	3. Ascertain and use correct setup.
4. Gun stroked too far from the surface.	4. Stroke the gun 6 to 10-in. from surface.
5. Material thinned out too much.	5. Add the correct amount of solvent by measure.
EXCESSIVE PAINT LOSS	
1. Not "triggering" the gun at each stroke.	1. It should be a habit to release trigger after every stroke.
2. Stroking at wrong angle to surface.	2. Gun should be stroked at right angles to surface.
3. Stroking gun too far from the surface.	3. Stroke the gun 6 to 10-in. from the surface.
4. Wrong air cap or fluid tip.	4. Ascertain and use correct setup.
5. Depositing a paint film of irregular thickness.	5. Learn to calculate the depth of wet film of finish.
6. Air pressure too high.	6. Use the least amount of air necessary.

(Continued on page 48)

IRPLANES · RANGE-FINDERS · AUTOGIROS · COMMUNICATION SETS
-RAY EQUIPMENT · RATION CANS · OPTICAL APPARATUS · GLIDERS
LYWOOD ASSEMBLIES · HIGH PRECISION INSTRUMENTS · GUNSTOCKS
UNFIRE CONTROLS · SHELLS · GAS MASKS · AMMUNITION · TANKS
ACHINE TOOLS · DISTILLATION UNITS · AIRCRAFT HEATER UNITS
MMUNITION CARTS · MOTORS · GENERATORS · FANS · BLOWERS
ELICOPTERS · ANTI-AIRCRAFT SEARCHLIGHTS · AIRPLANE PROPELLERS
REDGING EQUIPMENT · MACHINE-GUN MOUNTS · LOCOMOTIVES
AVY BICYCLES · POWER CRANES · HOSPITAL EQUIPMENT · JEEPS

Over 1700 INDIVIDUALIZED FINISHES

formulated by us for war and essential civilian production

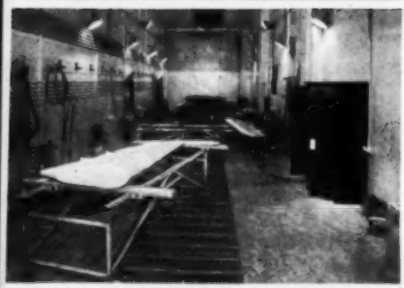
Murphy Protective Coatings were among the first to go on war materials when our country launched its defense program. . . . First, because we had the "know-how" resulting from three-quarters of a century's service to industry. To date, we have produced over 1700 individualized finishes to meet the special requirements of a vast variety of products essential to our armed forces and civilian needs.

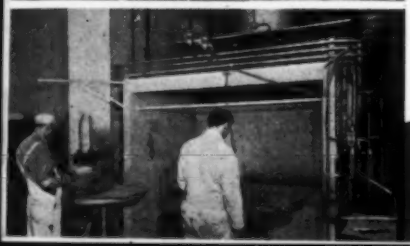
The technical skill and experience that achieved this outstanding record will prove of real value to you in meeting present finishing needs or in postwar planning. We are always ready to put any special problem you may have up to our laboratories for solution. Consult the Murphy Service-Salesman.

Put it up to Murphy

MURPHY FINISHES CORPORATION
A subsidiary of Interchemical Corporation
NEWARK · SAN FRANCISCO · CHICAGO

MURPHY *Protective Coatings*





ABOVE
Binks Dynaprecipitor down draft spraying booth of size to accommodate major sections of Navy warplanes. Room air is moved in at rate higher than that of exhaust, thus causing internal pressure at all seams and excluding all dust.

•

LEFT, TOP
Paint-spraying of propeller blades used on Naval aircraft. Binks-designed-and-built booth and paint circulating equipment.

•

LEFT, CENTER
Dynaprecipitor spraying booth with close-controlled filters, adjusted to temperature and humidity . . . required in applying "dope."

•

LEFT, BOTTOM
Spray-painting of warplane detail parts, using Binks equipment. Assembly and Repair section of U. S. Navy Air Station.

NEW YORK • DETROIT • SAN FRANCISCO
PHILADELPHIA • PITTSBURGH • CLEVELAND
ST. LOUIS • MILWAUKEE • BOSTON • LOS ANGELES
SEATTLE • WINDSOR, ONTARIO, CANADA

On Active NAVAL DUTY

Why, of course, Binks is on active naval duty, too. This time we find an extensive installation of Binks paint spraying booths and equipment performing meritorious service in the assembly and repair section of the U. S. Navy Air Station in Rhode Island.

The accompanying photographs reveal examples of the broad assortment of spray-painting tasks performed, and the variety of Binks equipment installed here to do each job with utmost speed, convenience and perfection.

Of particular note in this installation is the conditioning of all air which enters the booth. Temperature and humidity are closely controlled for maximum efficiency. This is very important in the application of airplane "dope."

Soon there'll come a day when you, too, can profit by having Binks design and construction service work out your paint-spraying problems. You'll need the advantages of the newest high speed painting techniques and the most modern product finishes to reach desired sales quotas in the highly competitive postwar years ahead.

And, it's not too early to begin planning. The Binks engineer in your locality will be glad to assist you. Better get in touch with him today.

Write Today for Your Copy of Binks Catalog Data Book

BINKS MANUFACTURING COMPANY

Possible Causes	Suggested Remedies
EXCESSIVE PAINT LOSS	
7. Fluid pressure too high.	7. Reduce pressure. If pressure keeps climbing, clean regulator on pressure tank.
PAINT WON'T COME FROM SPRAY GUN	
1. Out of paint (gun begins to sputter).	1. Add paint, correctly thinned out and strained.
2. Settled, caked pigment blocking gun tip.	2. Remove obstruction; stir paint thoroughly.
3. Grit, dirt, paint skins, etc., blocking gun tip, fluid valve or strainer.	3. Clean your spray gun thoroughly, and strain the paint. Always strain paint before using it.
PAINT WON'T COME FROM PRESSURE TANK	
1. Lack of proper air pressure in the pressure tank.	1. Check for leaks or lack of air entry. Adjust air pressure for sufficient flow.
2. Air intake opening, inside of pressure tank lid, clogged by dried-up paint.	2. This is a common trouble. Clean the opening periodically.
3. Leaking gaskets on tank cover.	3. Replace with a new gasket.
PAINT WON'T COME FROM SUCTION CUP	
1. Dirty fluid tip and air cap.	1. Remove air cap and clean tip and cap carefully.
2. Clogged air vent on cup cover.	2. Remove the obstruction.
3. You may be using the wrong air cap.	3. Ascertain and use correct setup.
4. Leaky connections on fluid tube or nozzle.	4. Check for leaks under water, and repair.
GUN SPUTTERS CONSTANTLY	
1. Fluid nozzle not tightened to spray gun.	1. Tighten securely, using a good gasket.
2. Leaky connection on fluid tube or needle packing (suction gun).	2. Tighten connections; lubricate packing.
3. Fluid pipe not tightened to the pressure tank lid.	3. Tighten. Check for defective threads.
PAINT LEAKS FROM SPRAY GUN	
1. Fluid needle packing nut too tight.	1. Loosen nut, lubricate packing.
2. Packing for fluid needle dry.	2. Lubricate this part daily.
3. Foreign particle blocks fluid tip.	3. Remove tip and clean.
4. Damaged fluid tip or needle.	4. Replace both tip and needle.

IN LESS THAN 6 YEARS
WRINKLE BECOMES A VITAL FACTOR IN LOW-COST INDUSTRIAL FINISHING
The result of its tremendous amount of research work in helping Wrinkle users to secure best results in formula and application is indicated in the rapid expansion of its laboratory facilities.
1942 Progress made it necessary to move the Wrinkle Laboratory to larger quarters. Here we had 1800 sq. ft. of floor space.
1938 The first Wrinkle Laboratory devoted to the interest of Wrinkle users had 500 sq. ft. of floor space.
Billy Wrinkle Says
"The best way to test the research and inventive skill of Wrinkle is to send us your product finishing problem."
1944 Constantly increasing demands on our research facilities resulted in this new Laboratory — the most modern and best equipped of its kind — with some 4000 sq. ft. of floor space and modern facilities available for research and development on all phases of formulation and application of Wrinkle coatings.
NEW WRINKLE INC
1773 Springfield St., Dayton 3, Ohio
"Wrinkle", "Billy Wrinkle" and "New Wrinkle" are registered trademarks of

You asked me what we really wanted...

October 2, 1944

Mr. Ed Bucy, Asst. Gen. Mgr.
Zapon Division
Atlas Powder Company
Stamford, Conn.

Dear Mr. Bucy:

You asked me what we really wanted for our postwar furniture. As a large manufacturer, I am most interested in the development of a finish which has the following characteristics:

Material must be in liquid plastic form.
Must dry reasonably fast either under infra red lamps or in dry kiln.
Must not require pressure for final cure.
Must be resistant to mild acids and alkalis, i.e., fruit acids, soaps, etc.
Must withstand normal heat met in service such as hot dishes, etc.
Must resist abrasion.
Must be available in clear, in both gloss or flat, or in pigmented colors with good hiding qualities.
Must resist beverage alcohol.
Must not be too expensive.

This we realize is an awfully big order -- and we may not get perfection in all of these qualities. However, you asked. If you have developed, or can develop, a finish with these characteristics, we would appreciate full information and working samples. If available postwar only, we want to work on valuation now -- if available now -- hurry.

Yours very truly,

[redacted]

By [redacted]
President

TJ/sm

...what Durelasto says about DURELASTO

Zapon Durelasto Wood Finish is a new development since the war started. We've kept it "under wraps" in our developmental laboratory, making improvements in our base formulations as our evaluation tests proceeded. While we don't say that Durelasto, as it stands now, is perfect, we think it does get pretty close to answering the requirements stated in the inquiry that is reproduced on the opposite page.

Shipped to you 50% solids in the clear—as high as 75% in white and colors. It is reduced approximately to 35% solids in the clear for spray or roll coat application on wood. One coat over Durelasto Sealer gives a full-bodied finish. Durelasto cures out in from one to two hours at 135° to 150°F. Mild acids or alkalis don't touch it; hot dishes don't soften it. Colors have excellent hiding quality; gloss and clear flats are brilliant.

Due to its extreme durability Durelasto (as we now have it) does not rub out or polish quite as easily as previously known lacquer and synthetic finishes. Durelasto may be machine-buffed with ease, however. Cold check, water resistance, alcohol resistance are all superior. To quote again the inquiry reproduced on the left, last but not least, Durelasto finished work doesn't cost you any more per finished square foot than other finishes which don't have the Durelasto qualities.

[redacted]

ZAPON

reg. U. S. pat. off.

ZAPON DIVISION

ATLAS POWDER COMPANY

Eastern Sales: Stamford, Conn. Western Sales: No. Chicago, Ill.

INDUSTRIAL PRODUCT FINISHES.. *Solving Tomorrow's Problems Today!*

What Fire Extinguishers to Use

EFFECTIVE "first aid" fire fighting requires the use of a suitable extinguisher on each different class of fire. There are three classes of fire, each determined by what is burning; and for each class there are appropriate extinguishers.

Fires in ordinary combustible materials, such as wood, paper, textiles, rubbish, etc., are known as Class A fires. They are best put out with water, which has a cooling and quenching effect. Extinguishers which contain water or chemicals and water are the soda-acid, foam, pump tank, gas cartridge and loaded stream types.

Vaporizing liquid and carbon dioxide extinguishers also are effective for controlling small Class A fires, if the fires are not deep-seated and if there are no strong air currents to dissipate the vapor or gas.

Fires in flammable liquids, grease, etc., are known as Class B fires. Here a blanketing effect is essential, to cut off the oxygen supply. Suitable extinguishers are foam, vaporizing liquid, carbon dioxide, and loaded stream.

Fires in electrical equipment, Class C fires, require the use of extinguishants that will neither damage equipment nor convey an electrical charge along the hose stream to the operator. Vaporizing liquid and carbon dioxide extinguishers are suitable for use on fires of this class. However, in some cases, fires in electrical equipment may be such that the quenching and cooling effect of large quantities of water is necessary. In such cases, the equipment should be made electrically dead before water or water solution is applied.

The Underwriters' Laboratories label on every approved fire extinguisher indicates the class or classes of fire for which that extinguisher is considered suitable and the number of such extinguishers considered necessary to comprise one unit of protection. Thus, a 2½-gallon foam extinguisher is designated "A-1; B-1," meaning that it is approved for use on both Class A and Class B fires, and that one such extinguisher is required to make one unit of protection. These units of protection are standards that have been established by Underwriters' Laboratories for convenience in measuring the relative fire protection by different kinds and sizes of portable fire extinguishing appliances.

The number of units of protection required in any given location depends upon the relative severity of the incipient fire to be anticipated. The National Fire Protection Association recognizes three general classes of occupancies—light hazard, ordinary combustilble, and extra hazardous. A guide for determining the number of units of protection required for each class of occupancy has been worked out. For instance, a place where fires of average intensity may be anticipated should have units so located that a person will not have to travel more than 50-ft. from any point to reach the nearest unit, but at least one unit will be required for each 2500-sq. ft. of floor area.

The inspection department having jurisdiction usually will determine the degree of hazard of a given occupancy. Further information is contained in a pamphlet entitled "First Aid Fire Appliances," published by the National Board of Fire Underwriters, 85 John St., New York, N.Y.

A finer, better product—*faster*

Back in 1940, one of the larger Eastern manufacturers installed a MAHON Finishing SYSTEM to augment finishing equipment already set up. Then came the speed-up of war production—presenting an unusual opportunity to compare the operational cost and productivity of the old and new systems, handling approximately the same work. So great have been the savings effected by the Mahon System over the old equipment, the management has decided to replace this old equipment with a second new and modern finishing system, designed, built and installed by Mahon. Work is now in progress and the new system soon will be in operation—assuring still further reduction in finishing costs, both on present and on future peacetime products.

Mahon engineers will be glad to give you the story in detail—and accord you fullest cooperation in working out a solution to YOUR finishing problems.

SPACE Saved

So compactly has this finishing system been engineered, it occupies considerably less area than the old equipment.

TIME Saved

Continuous conveyor production, throughout, dispenses of needless repeated handling and the possibility of damage to product.

MANPOWER Saved

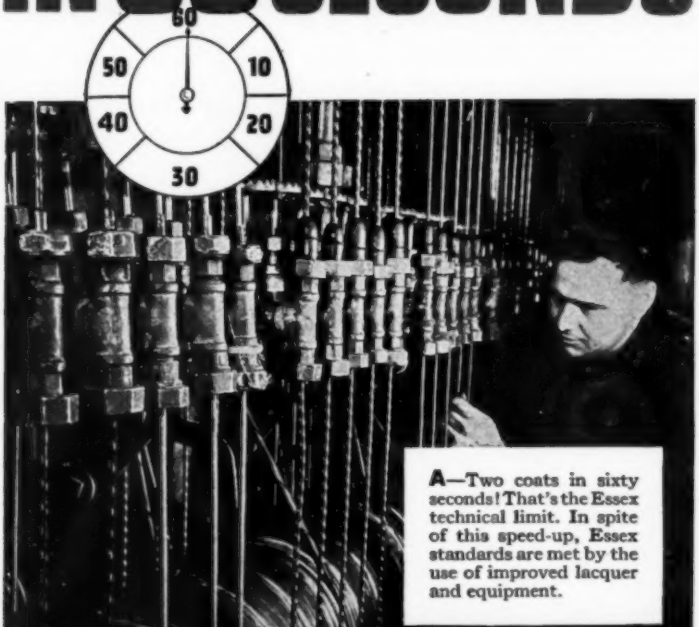
With the exception of spray painting operations, the system is almost entirely automatic. Men, formerly required, now are released for other essential work.

THE R. C. MAHON COMPANY

DETROIT 11 — CHICAGO 4

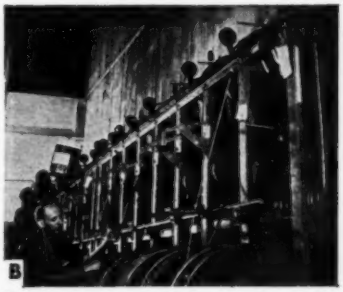
Manufacturers of Metal Cleaning Machines • Rust Proofing Machines • Hydro-Filter Spray Booths • Ovens of All Types • Filtered Air Supply Units • Hydro-Foam Dust Collectors—and Many Other Units of Special Production Equipment—including Complete Finishing Systems

SECOND COAT IN 60 SECONDS

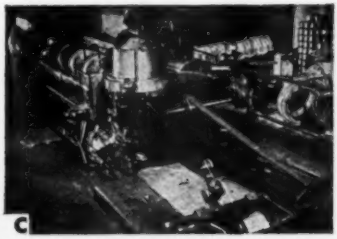


A—Two coats in sixty seconds! That's the Essex technical limit. In spite of this speed-up, Essex standards are met by the use of improved lacquer and equipment.

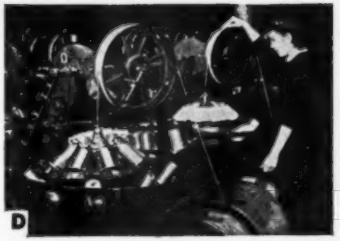
SHERWIN-WILLIAMS



B—Excellent results are gained only by careful processing under technical control with specially developed lacquers.



C—Essex equipment often draws a million feet of wire from one foot of ⅝" copper rod. First step is shown.



D—Lacquers strengthen the wire braid which protects and identifies

Essex Wire Corporation and SHERWIN-WILLIAMS speed up lacquer-coating of wire

The government demanded MORE and BETTER wire AT ONCE for military use. Flame-proof and heavy duty coatings were required—some needing thirty lacquer coats.

Multiple coating NEEDED EXTRA SPEED in drying time.

Sherwin-Williams stepped in with new, improved lacquers which cut drying time to about a minute. Essex Wire was thus able to supply the armed forces with better wire—at no added cost!

Just another example of the Sherwin-Williams "Know-How" obtained from accumulated experience and modern technical staffs. The Industrial Finishing Division of Sherwin-Williams is set up to help your industry, too. Write the Sherwin-Williams Company, Cleveland 1, Ohio.

INDUSTRIAL FINISHES

A Film is Born

BY PAUL O. BLACKMORE

Director, Products Engineering & Development Laboratory
Ault & Wiborg Division of the Interchemical Corporation

JOE GLANCED at the clock and noted that within about five minutes the factory whistle would blare forth, proclaiming the end of his working day. He twirled the turntable on which a piece of furniture was resting in his spray booth and skillfully guided his spray gun around the edges and across the top of a new end table. Then, hanging the gun on its hook, he gingerly lifted the table out of the booth and placed it carefully on the floor of the finishing room alongside others he had finished.

"A pretty sweet lot of furniture," Joe thought proudly to himself as he bent over for a close inspection of his handiwork. "It'll be dry and ready for the rubbing deck in the morning, right on schedule."

The whistle blew. Joe turned off the fan and light in his spray booth, picked up his dirty rags, and with one last glance at his afternoon's work, disappeared through the door. His part of the job was done. From now on it was up to Nature to do her stuff. "It'll be dry in the morning," he had said. Certainly it would. It always had been dry in the morning. Nature never failed; never let him down. Of course, sometimes the lacquer wasn't right and then he had to call in a service man to fix it, but he hadn't had any trouble with this batch. Yes, it would be dry in the morning. So Joe went home to his wife, his dinner, his pipe, and his newspaper, while Nature finished the job he had so capably started.

Joe sprayed it; Nature would dry it.

"What Makes Paint Dry," is a subject the Editor assigned to Paul Blackmore, and here is the first installment of his tremendously important and authoritative article, for which, incidentally, he prefers the more intriguing and dramatic title, "A Film Is Born." Drying by evaporation, oxidation or polymerization, or any combination of these, includes things that few if any of us ever thought about, in connection with the drying of a film of lacquer, varnish or synthetic enamel.

THE return from war to peace production by *Sprayit* and *Elsco* will be News...*Headlines* will be made when our post-war products are announced.

These new and improved products will be the finest ever offered...They will have new and more appealing appearance...They will have increased efficiency...They will be manufactured from the finest basic materials, by highly skilled hands, in a most modern, mass production plant...They will have value beyond anything yet available.

Sprayit will offer an outstanding new line of spraying equipment, air compressors, spray guns, insecticide sprayers, air tools, sanders, and allied finishing equipment.

Elsco will produce a fine line of electric motors, generators, hydraulic cylinders, valves, pumps and controls for aircraft, automotive and other industrial applications.

Civilian production wheels will be set in motion just as soon as present restrictions permit. Meantime, our organization, while working for war, prepares for peace.

ARMY (E) NAVY

ELECTRIC SPRAYIT CO.

SHEBOYGAN, WISCONSIN

What Causes a Film of Paint or Finishing Material to Dry

What sort of a job did Nature have to do for Joe? Which of her laws governs the processes of drying? Let's take a peek into the private life of a paint film and see what we can discover.

A film of paint or finishing material drys in one or more of the following three ways:

1) Loss of solvent, or evaporation.
2) Oxidation.
3) Polymerization.

At least these three processes are the ones with which we are most concerned. There are other drying "tricks." For example, a newsprint ink drys by absorption into the paper. Other inks are dried by "precipitation," by causing them to come into contact with a liquid such as water, that is a non-solvent for their solid ingredients. Hot-melt coatings for paper labels dry by freezing. By and large, however, 99.44% of our drying experiences rely upon one or more of the phenomena just listed as 1), 2), and 3).

Method No. 1 is common to all present day finishes except those few rarities which are applied molten by means of a hot spray or a hot melt coating machine. If you are using a lacquer whose solid ingredients are composed of nitrocellulose, ester gum, castor oil, and dibutyl phthalate, it will dry entirely by method No. 1. If, instead of ester gum, it contains a certain type of alkyd resin, it will employ methods No. 1 and No. 2. All enamels that are air dried, whether they be alkyd or oleoresinous in nature, employ methods 1 and 2.

Method No. 3 is generally the result of the application of heat and is, therefore, a characteristic common to baking enamels, although polymerization *can* be made to take place at room temperature by the use of certain "catalysts." Some oxidation is generally associated with polymerization, and vice versa.

Let us examine these methods one by one, starting with evaporation.

Why a Wet Floor Dries

A mop is defined as something for which we look while we're waiting for the water to dry. Why doesn't the water stay there on the floor until we find the mop? Where does it go? In some of our previous discussions we have talked about electrons, atoms, and molecules, and some of the queer things they do. It is to them that we shall again have to turn to get an answer to the above questions.

Water on the floor will disappear by evaporation, eventually, mop or no mop.

A molecule is the smallest unit into which a given substance may be divided.

"But," you interpose, "an atom is smaller than a molecule."

True. But when you pass an electric current through water and break it down into two atoms of hydrogen and one of oxygen, you no longer have a liquid with a specific gravity of 1.0, a boiling point of 212°F., and a freezing point of 32°F. In

Combat Rations

FOR A STRAFER! DRY TO SHIP IN 30 MINUTES . . .

Aerial machine guns have a big appetite, and much of their "food" is shipped in painted wooden cases, made by the Sieglar Enamel Range Company, St. Louis. ¶ The paint system is simple. One spray coat does the job. The material dries so fast that the cases are ready to ship in 30 minutes. Berry Brothers' technical service analyzed the need—and met it perfectly. ¶ What is your wartime painting problem—or your postwar need? We will be glad to help you with it. Write or wire.

BERRY BROTHERS
Paints · Varnishes · Enamels · Lacquers
Detroit 7, Mich. Walkerville, Ont.

JERSEY CITY • BOSTON • CINCINNATI • CHICAGO • ST. LOUIS

QUALITY FINISHES SINCE 1858

The Case of the FINISH wh

Two minutes spray
That's the fi ng re
faced a fabri of g

This manufac was
mous tonnage finishe
at high speed. lenly
put a finish on m. Ho
extra operation his sc
ously delaying duction
help he called in Du Po

The custome nted a
with the quick- ng adv
The Du Pont r propo
which dried in inutes
said the manuf er. "A
allow is 2 minu om spr
Du Pont then s ested
finish which pe ted ba
installed infra-r quipm
was cut to 37½ m , thus
the requiremen the p

WRITE OR WIRE THE DU PONT WAR SERVICE MEN R MA

☐ *How to speed output and save materials*

Handy pocket-size, fully illustrated booklet, *"Hints on Wartime Finishing Economies."* Shows you 11 points to check for greater efficiency and speed on your war contract finishing schedules.

☐ *How to meet emerge and solve problems*

Check here for the help of Du War Service Men—skilled "tro shooters" to straighten out "ki in your finishing system *befo after* the trouble occurs. T "know how" is at your disposa any war contract finishing. W about your trouble. Or wir case of emergency.

...uh a 2-MINUTE DEADLINE

How the Du Pont War Service Man helped a manufacturer meet a drying-time problem that threatened to upset production

...nutes ...spray gun to stacking! ...the fi...g requirement which ... fabri... of galvanized sheets.

...anufac... was producing an enor... ...nnage ... finished galvanized sheets ... speed. ...denly he was requested to ...nish on... ...m. How could he fit this ...eration... his schedule without seri... ...elaying ...duction? In vital need of ...called in... Du Pont War Service Man.

...ustome... ...nted an inexpensive finish ... quick-... ...g advantages of lacquer. ... Pont ... proposed a special finish ...ried in ... ...inutes. "Not fast enough," ... manuf... ...er. "All the time we can ... 2 minu... ...om spray gun to stacking." ... then s... ...ested modifications in the ...hich pe... ...ted baking under readily ... infra-r... ...quipment. *The drying-time* ... 37½ s... ...s, thus more than meeting ...iremen... the production schedule.

But there's more to this story than solving a critical production problem. On three occasions the customer's demands for the new finish exceeded the supply of restricted ingredients used in it. Anticipating this shortage, Du Pont chemists each time had ready a revised formula using available materials. They are continuing this research to assure an uninterrupted supply of the finish in the future.

If you have a finishing problem, let a Du Pont War Service Man assist you in finding an answer. His many years of experience in solving finishing "mysteries" of all kinds will be helpful. For assistance, write to:

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

...MEN... MAIL THIS COUPON! E. I. DU PONT DE NEMOURS & CO. (INC.) FINISHES DIVISION, WILMINGTON, DELAWARE

...emerge... ...blems

...p of Du... ...lled "tro... ...n out "ki... ...em *befo...* ...curs. T... ...r disposa... ...shing. W... Or wire...

SEND THIS ENTIRE COUPON TO:
E. I. du Pont de Nemours & Co. (Inc.)
7150-K, Du Pont Building
Wilmington 98, Delaware

NAME_____

FIRM_____

ADDRESS_____

(This coupon good only in the U.S.A.)

Our 16th Anniversary

1928-1944

During 16 years of steady growth through the Depression and the trying War Years, we have done our best to give our customers quality protective coatings and prompt delivery at low cost to them. Their cooperation, advice and constructive criticism have been greatly appreciated, as it helped us to improve and expedite our service to the industrial trade. Our Present and Postwar plans are to do everything possible to effect a continuance of these friendly relations.

To those of you whom we have not had the pleasure of serving, we invite your inquiries for such excellent quality materials as—

CLINCO

Air-dry Synthetics
Furniture Lacquers
Pigment Stains
Lacquer Cements
Baking Synthetics

Casket Lacquers
N G R Stains
Maintenance Paints

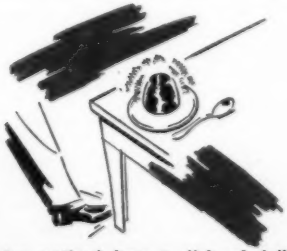
THE CLINTON COMPANY
1210 Elston Avenue · Chicago 22, Illinois

other words, you no longer have water. You have two gaseous elements with properties totally unrelated to the water from which you obtained them. Therefore, a molecule of water is the smallest unit which, by itself, will have the properties of water. There are billions of them in a cubic inch. They are constantly in motion, and without a traffic cop to guide them, you can imagine what chaos reigns. They are continually colliding with and bombarding each other, then dashing off at a new angle until they again meet up with a new obstacle. We cannot see this molecular traffic jam even with the aid of the electron microscope. We can, however, see its effect.

Study of Molecules Leads to Facts About Finish Drying

If you will examine a solution of colloidal gold under a powerful microscope, you will note that the tiny particles of metal are in continual motion which is vaguely reminiscent of the behavior of a dish of Jello-O when, by chance, you kick the leg of the kitchen table. The metallic particles are not shivering from fright, although they might well be, in contemplation of the terrific barrage of molecules flying at them from all sides.

However, more molecules may



You've noticed how a dish of Jell-o quivers when the table is bumped.

Molecules in motion remind you of a dance in a well-crowded night club.

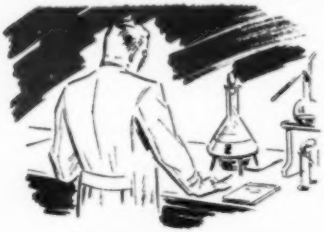
bombard the particle from the north than hit it from the south. When this occurs, the particle must move in the direction of the greatest force, so it goes until the direction of force is changed by bombardment from another direction or until it collides with another particle of its own kind. If, while observing this phenomenon, you cause the colloidal gold solution to be heated, you will notice that the particles move much faster. Heating has excited the bombarding molecules and increased their velocity. If the solution is now cooled, the molecules slow down again. If the cooling could proceed to the point the chemist calls "absolute zero," where no heat at all remains, the motion would stop completely. The phenomenon we have just described is known as "Brownian Movement."

Did you ever go dancing in a crowded night club on a Saturday night? It was pretty discouraging, wasn't it? You got out on the floor at the first note from the orchestra, to get in a few steps before the bombardment began; but everyone else had the same idea, and before long they were coming at you from all sides. It was pretty confining. You were jostled first in one direction, then another; and, tiring of it all, you made your

way finally toward the edge of the floor, and sweet escape. Just as you got there, however, another couple decided to enter the melee, and in doing so, thrust you back into the maelstrom. Again you struggled for freedom, gained it, and emerged into what seemed, by comparison, like the great open spaces.

Chemist Looks at Beaker of Water; Explains Vapor Pressure

Let us turn from our dance floor analogy to the case of a beaker of water resting on the laboratory table. It is one-third full of water and is covered with a watch glass



The chemist observes "dynamic equilibrium."

that fits snugly about its rim. It is 75°F., normal room temperature. Within the beaker, the molecules of water are doing their eternal dance at a tempo becoming to a well trained water molecule at that temperature. At the time the watch glass was placed over the beaker, the air space between it and the water level contained a few water molecules which had been present as natural humidity in the air.

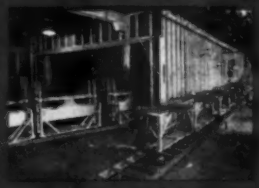
The dance goes on, and occasionally a molecule, finding a corridor of negligible resistance, dances right out of the body of water into the air space above it. Just as you found grateful relief from the crowd upon leaving the dance floor, so the molecule of water finds itself in an area of much lesser density, now having to cope only with the molecules of hydrogen, oxygen, nitrogen, and other components of air, a few additional water molecules, and the surface of the beaker and watch glass. However, this is by no means a one way street, and occasionally a molecule is bombarded right back into the water just as you were on your first attempt to leave the dance floor.

Initially, many more molecules leave the water than re-enter it, but as the process continues, a situation is finally reached where the number of molecules leaving the water is in "dynamic equilibrium" with those re-entering. When this happens, the air in the beaker is said to be "saturated." Evaporation of the water does not stop, but it is balanced by condensation of the re-entering molecules. The kinetic energy of the water molecules in the vapor phase exerts a definite pressure upon their environment. The extent of this pressure at the time "dynamic equilibrium" has been reached is known as the "vapor pressure" of that particular liquid.

What Happens When Heat Enters the Picture

Now if we put our beaker of water on a hot plate, we increase the tempo of the dance, the kinetic energy of the molecules is increased, and they find it possible to break away from the surface of the liquid in ever increasing numbers. After a time the vapor pressure builds up to a point where it equals and then exceeds the pressure of the gas space tending to confine it, and at this point the water boils. The temperature at which the vapor pressure reaches

KOCH FINISHING SYSTEMS



Investigate KOCH humidified-air forced drying as a source of postwar production gains and lower costs.

Find out how you can save time and material, eliminate rejects—get double output with same force, same floor space—cut out over night drying—do away with dependence on outside weather conditions.

Phone, Wire or Write for Complete Details

KOCH Industrial Equipment

...OMS, INC. ... 618 PENNA. ST., ... IND.

760-mm. of mercury is known as the "boiling point."

If we now remove the watch glass, the molecules of water vapor pass out into the wide open spaces. Dynamic equilibrium is destroyed. Few molecules re-enter the liquid phase. The thoroughfare becomes a one-way street, and eventually the water disappears into the atmosphere. Since the rate at which water molecules leave the liquid surface is constant at a given temperature (all other conditions being equal) then the loss of water will be proportional to the surface area exposed. Thus, a quart of water will require much longer to evaporate from a quart can than if it were spread out in a thin film on the floor.

Volatile Liquids and Vapor Pressure

The dance of the water molecules is typical of volatile liquids in general. Each liquid has its own characteristic vapor pressure. The vapor pressure of ether and acetone at 75°F. is very much higher than that of water, and these liquids are said to be highly "volatile." A heavy mineral oil, on the other hand, has a very low vapor pressure and is said to be "non-volatile." Actually, no liquid is non-volatile, but many of them have vapor pressures so low that it would take years for them to evaporate at normal temperatures.

Thus it will be seen that the rate at which a liquid solvent evaporates depends upon:

1) The existing temperature.

2) The vapor pressure of the liquid at that temperature.

3) The relationship between volume and exposed surface area.

4) Conditions tending to promote or destroy dynamic equilibrium.

How does this knowledge tie in with your finishing room problems? Let's take the first factor—existing temperature.

What Happens in a Cold Barn of a Finishing Room

Perhaps your finishing room is a big barn of a place, poorly insulated and not weather-stripped, with a lot of wide sliding doors that are being continually left open. The boss has decided it would cost too much to heat the place adequately during the winter. It is much cheaper for you to wear your long woolen undies and an overcoat. Unfortunately, however, scientists have not yet invented underwear for molecules, so when they get cold they just slow down, lose a lot of their kinetic energy, and jump away from the surface of the film at a very much reduced rate.

The boss, at home in his warm bed, may not be very much impressed with the plight of the shivering molecule, and if you pack the finished stuff in the morning

Spraying in a cold barn of a finishing room isn't comfortable or satisfactory.

and it prints, his sympathy for you will be even less. You can tell him it is his own fault. If he breaks a man-made law, he expects to be punished. Nature, too, ex-

here it is!

SANCO

AIDANAMEL

A new, extremely fast-drying, one-coat baking enamel . . . developed after several years of patient laboratory research

- Made of non-critical materials.
- 10-minute baking period . . . dries with a glossy, glass-like finish.
- Durable and elastic . . . ideal for all metal surfaces.
- Colors . . . white and a wide variety of tints.

Prompt Deliveries!

With strict adherence to United States Army and Navy specifications, we produce a full line of protective coatings for all wartime applications. Your inquiries will receive immediate attention.

Sanco

The Monroe Sander Corporation

10-18 46th Avenue Long Island City 1, N. Y.

acts her penalties. She has a law that reads, "Vapor pressure, and therefore the rate of evaporation, is a function of the kinetic energy of the molecules, and the kinetic energy in turn is governed by temperature." The cost of refinishing a carload of furniture will pay for quite a few British Thermal Units, the best substitute we have at the moment for molecular underwear. Moral—do not let the temperature of your finishing room drop below 65°F.

The Over-Heated Finishing Room

So far we have discussed the effect of temperatures that are too low. What happens in the other direction? The solvent molecules get all excited and dash about in a greatly accelerated fashion, leaving the film in ever increasing numbers. This is fine in the interest of drying, *provided* flow has already taken place, eliminating orange peel—*and provided* the solvent does not leave so rapidly that the surface seals over, trapping considerable solvent underneath.

Fortunately this condition is more easily corrected than that resulting from *too little heat*. The antidote for this poison is the selection of a solvent whose vapor pressure at the existing high temperature is about equivalent to that of your regular solvent at normal room temperature. Your paint supplier's technicians will know what to recommend. They will call it a "retarder." It will keep the film open, promote flow, prevent case-hardening, and prevent blushing. Too much of it will unduly retard drying, increase flow to the point of producing sags and runs. Use only as directed.

Let's talk for a few moments about blushing. It is a common ailment. What causes it?

Blushing—What Causes It; Relative Humidity; Dew Point; Etc.

Blushing is indirectly related to vapor pressure. We have pointed out that heat is dissipated in increased kinetic energy. Thus, when a molecule leaves the surface of a liquid, it reduces the temperature of that liquid by an infinitesimal amount. The amount of heat lost is known as the "heat of vaporization." Everyone has experienced the cooling effect of the evaporation of ether from the palm of the hand.

Now let us define "relative humidity." *Relative humidity is the ratio of the actual amount of water vapor in the atmosphere to the amount it could contain at the existing temperature.* When the relative humidity reaches 100%, the atmosphere is said to be "saturated." If, while this condition exists, the temperature drops a few degrees, the atmosphere becomes "super-saturated" and some of the moisture condenses in the form of fog. The air has been cooled below the "dew-point."

Let us assume we are spraying lacquer on a hot, humid summer day. The atmosphere is saturated, or nearly so, with water vapor. Kinetic energy, and therefore vapor pressure, is high. Solvent molecules are coming off at a high rate of speed, taking with them minute quantities of heat. However, the cumulative effect of millions of these tiny heat losses is considerable and the temperature of the surface of the film may be lowered several degrees. If the temperature at the surface is depressed below the "dew-point," water precipitates on the film.

Try reducing your lacquer with water some time, and see what happens. The solids will precipi-

When Uncle Sam Says-

PRESTO, CHANGO!

IT MAY well come just like that—**your** need to convert from wartime production to straight civilian production of goods requiring special industrial finishes.

These finishes cannot be tailor-made overnight — but you can be **ready** if you consult with us **now** and let our planning and engineering staff help develop just the right finish for your V-day needs. No charge for this service, but delay may easily prove costly.

Rely on Reliance

RELIANCE VARNISH CO., INC.

LOUISVILLE, KY. CHICAGO, ILL.

tate in a whitish, gummy mass. The same thing happens at the surface of the film. The solids precipitate, but in this case, because the precipitant (water mist) was of a very low order of particle size, the solids are precipitated colloidally. Light rays impinging on these tiny opaque particles are diffused and reflected, giving the appearance of whiteness. The blush may or may not disappear. If it does, it is because there was enough low vapor solvent in the film to remain after the water had evaporated and redissolve the precipitated solids.

Other Causes of Blushing; Improper Solvent Balance

Blushing may also be caused by an improper solvent balance. A lacquer solvent may contain: 1) active solvents, 2) latent solvents, 3) diluents.

Active solvents actually dissolve (or colloidally disperse) nitrocellulose. Latent solvents will dissolve nitrocellulose in the presence of certain active solvents but will not do so by themselves. *Diluents will not dissolve nitrocellulose but may dissolve resins and plasticizers.* The ratio of solvent to diluent in a good lacquer thinner may be in the order of 40 to 60. However, *this ratio must exist throughout the entire period of evaporation.* If it does not, and if the solvent comes off more rapidly than the diluent, the solvent mixture becomes weaker and weaker and finally the nitrocellulose colloidally precipitates and causes a blush. The remedy is to increase the ratio of solvent to diluent, and to select a solvent with a lower vapor pressure.

Now let us pass on to the second factor governing evaporation—the vapor pressure of the liquid at the existing temperature.

"Slow" and "Fast" Thinners; Balanced Vapor Pressures

This is something over which the finisher has little control. He may, and many finishers do, ask his supplier to furnish a "slow" and a "fast" thinner which he may use interchangeably or intermixed, as the case may warrant. When he turns to a "slow" thinner on a hot day, he is actually exercising a certain measure of vapor pressure control. However, this is a job for the lacquer technician. A well formulated lacquer will contain a blend of solvents and diluents, the vapor pressures of which are carefully balanced so that the solvent power remains as nearly constant as possible throughout the entire evaporation period, and will contain a liberal portion of solvents that will keep the film open long enough to permit leveling of the orange peel and prevent case-hardening as well as blushing.

Like runners in a track meet, some thinners are fast; others are slow.

Unfortunately, the price structure dominating the bulk of the furniture finishes will not permit such Utopian formulating. Consequently, the formulator must turn to the cheaper solvents such as ethyl acetate and methyl ethyl ketone. I do not mean to speak disparagingly of these solvents.

(Continued on page 72)

... a good name to remember!

ARMY NAVY E

Yes, when the Nation can once more get back into the production of consumer goods, it will pay you to remember "Vedoc"—an *exceptionally fine* synthetic-enamel finish.

Today, the makers of "Vedoc" are engaged 100% in making war paints. Tomorrow, however, they will be ready with a complete line of new and improved finishes . . . for such products as washing machines, refrigerators, kitchen cabinets, to mention only a few.

QUID PLASTICS DIVISION

ERRO ENAMEL CORPORATION

CLEVELAND 5, OHIO

They have excellent solvent power, and there is a place for them in moderate quantity in any good lacquer thinner. However, their vapor pressure is much too high to be used without the retarding influence of butyl or amyl acetates, cellosolves, etc. Much the same thing may be said of the diluents. Benzol is considerably cheaper than toluol and is tempting to the technician who is faced with having to reduce costs radically.

The finisher who is not willing to pay a reasonable price for lacquer thinner may expect dry spray, poor flow, blushing, and other film ailments, and he should not complain bitterly about it. If the truth were known, it probably hurt the poor formulator more to make it than it did the finisher to use it.

The formulator knows best how to give you a lacquer with "controlled vapor pressure." Give him a chance.

The third item enumerated on a preceding page — *the relationship between volume and exposed surface area*—is very much within the means of the spray man to control. Let us consider an example:

Thickness of Lacquer Film; Practical Examples

Joe, the character of our story, sprayed (x) end tables, the surface area of which totaled 10,000-sq.ft. Joe knew from experience that in order to obtain adequate build and gloss, he had to apply lacquer at a wet film thickness of three mils (.003-in.). Ten thousand square feet equals 1,440,000-sq.in. Three mils wet film over this area equals 4,320-cu.in. or about 18.3 gallons. However, Joe noticed that the surface he was spraying was not quite up to its usual standard for smoothness, so he decided to "give it an extra pass."

Let us say this resulted in a wet film of four mils. Joe has now put one-third more lacquer through his gun, or a total of 24.4 gallons, but he still has sprayed only 10,000-sq.ft. of surface. The molecules will not leave the film any faster just because there is one third more of them. It is too late to do anything about changing the vapor pressure. However, Joe can and must raise the temperature if he wishes to obtain equivalent drying in a given length of time. Elementary? Certainly. *Everyone knows that a thick film drys more slowly than a thin one.* Now that we know it is all tied up with the laws of kinetic energy and vapor pressure, let's go on to item four.

Dynamic Equilibrium Is Not Desirable in Finishing Room

The conditions tending to promote or destroy dynamic equilibrium are also within the control of the finisher. To repeat, dynamic equilibrium is the point at which the rate of re-entry of solvent molecules equals their rate of exit. Therefore, dynamic equilibrium is something not to be desired in the finishing room.

In our experiment with the beaker of water we destroyed dynamic equilibrium when we removed the cover glass. Obviously, Joe cannot remove the roof from his finishing shop—but he can provide, artificially or otherwise, adequate air in motion to carry away the solvent molecules as fast as they are released. Of course, open windows or too much air circulation carries with it a dirt problem, but there is moderation in all things. Call it "fume concentration" or "dynamic equilibrium" as you will, but, by any name, it retards drying and builds up a fire and explosion hazard. *(Continued on page 74)*

ALUMINUM RESTRICTIONS LIFTED!

NOW you may buy **ALUMINUM PAINTS—ALUMINUM POWDERS**—and **ALUMINUM PASTES**—for any purpose WITHOUT RESTRICTIONS! Get the best in pre-war *quality*—**"ILLBRONZE PRODUCTS."** Anticipate your needs for future delivery soon! See your nearest distributor or write direct!

ILLINOIS BRONZE POWDER CO.
2021 So. CLARK STREET, CHICAGO 16

In discussing the process of evaporation we have taken, as our example, an ordinary furniture lacquer. We must not forget, however, in passing on to a study of oxidation and polymerization, that evaporation is always the primary drying process for any solvent-soluble finish, and until it has progressed to a state of near-completion, the secondary processes function only slowly if at all.

(To be continued)

Du Pont Announces Appointments

Appointment of E. M. Flaherty as manager of the Finishes Division of the Fabrics & Finishes Department is announced by E. I. du Pont de Nemours & Co.

W. M. Zintl was appointed assistant manager and W. F. Donohoe was made director of Finishes Division sales, succeeding Mr. Zintl. Matt Denning becomes assistant director of sales of the Finishes Division succeeding Mr. Donohoe, who held the same position under the title of general sales manager.

Glidden Co. Announces Important Promotions

Gordon H. Mutersbaugh, who started in the chemical laboratory in 1923, has just been made general superintendent of the Paint and Varnish Division of The Glidden Co., Cleveland, Ohio. Mutersbaugh relieves Gurdon H. Hamilton, who will now devote all of his energies to his position as vice president in charge of Glidden's Chicago paint divisions. Nelson W. Haviland, formerly production manager of Glidden's Cleveland plant, takes over the post of plant superintendent vacated by Mutersbaugh.

In his new position, Mutersbaugh will be assisted by Earl T. Riter and Joseph E. Andrews, both veteran production department employees of the company.

Coincident with these changes, Edward C. Schulte, who joined the technical department in 1931, becomes Technical Director of the Glidden Paint and Varnish Division. T. A. Neuhaus, who has done exceptional work in the company's Cleveland lab., becomes director of this laboratory.

Lambe Advanced in Kellogg Division of A.B.S. Co.

William G. Lambe, former Director of spray gun sales at the Crown Spray Gun plant of the Kellogg Division of American Brake Shoe Co., located in Los Angeles, Calif., has been appointed an Assistant General Sales Manager of the Kellogg Division. He will be in charge of spray equipment sales of that division and will make his headquarters at the home office in Rochester, N. Y.

W. G. Lambe, formerly Director of Spray Gun Sales at the Crown Spray Gun plant, is now made Asst. General Sales Manager of Kellogg.

Major Clinton Returns to U. S.

Major R. H. Clinton, Vice President of The Clinton Co., manufacturers of finishing materials, Chicago, Ill., has returned to the U. S. on leave from service in France. Major Clinton was with the 9th Air Force. He was executive officer in a B-26 squadron and from one of the leading bombers he observed allied landing operations on that historic day of June 6, 1944.

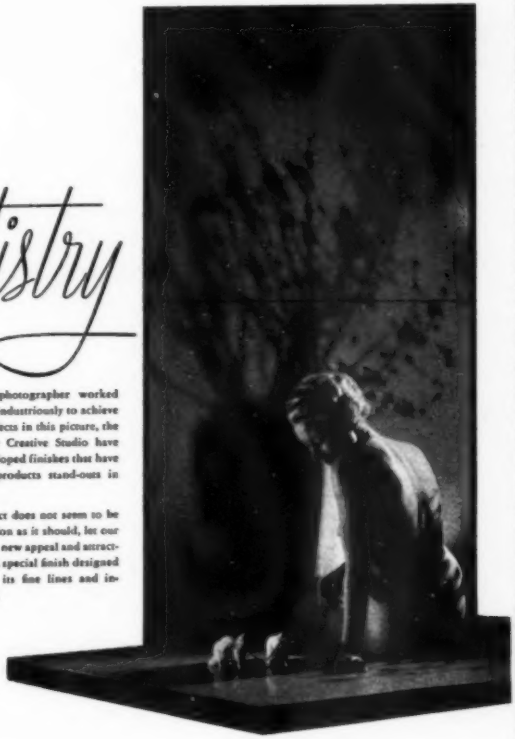
The Major is now in the U. S. taking training for an important task having to do with renegotiation of contracts with manufacturers of aircraft and supplies for the air forces.

Large Plastic Articles

Monsanto Chemical Co., St. Louis, Mo., announces that its technicians have perfected a new synthetic resin, which, when properly used in a low-pressure lamination process, will all but eliminate size as a restrictive factor in postwar plastics.

In low-pressure lamination, heavy machines are not needed. Moreover, manufacture is simplified by the fact existing 3-dimensional items may be used as forms or molds, and thus duplicated in plastic.

Artistry



Just as the photographer worked patiently and industriously to achieve the artistic effects in this picture, the artists in our Creative Studio have carefully developed finishes that have made many products stand-outs in their field.

If your product does not seem to be pulling attention as it should, let our artists bring it new appeal and attractiveness with a special finish designed to emphasize its fine lines and inherent beauty.

No Tampering with Quality

Your inquiry will receive our prompt attention.

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

Cause and Prevention OF Bleeding and Lifting

What causes bleeding is that certain color materials (dyes or pigments) used on a surface are especially soluble in the solvents of coatings that are applied over these colors—either at the time or later in a refinishing or repaint job.

BY ROLLIN H. WAMPLER

BLEEDING AND LIFTING are annoying troubles that sometimes occur in finishing industrial products with organic materials. They are entirely different things. Their causes are quite different, but the same procedures will eliminate both troubles; hence the reason for considering such seemingly unrelated phenomena in the same article.

Bleeding is a condition where some color used in a preceding operation bleeds through or seems to float to the surface of a later or final coat, either clear or opaque. Bleeding of stains into subsequent clear or tranparent coats may cause undesired brilliance, a spotty appearance, or even non-drying of the final coats. With enamels, a stain on the surface (under the enamel) such as a smear of asphaltum or a mark made with a wax crayon, may bleed to the surface and cause spots over such areas.

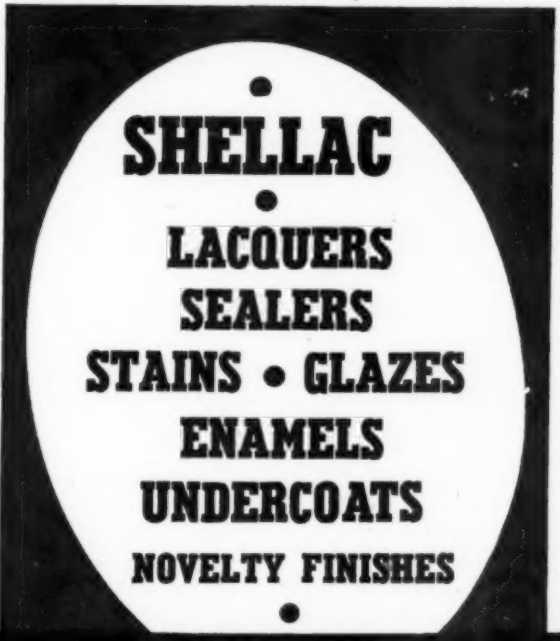
All who have worked with white enamels will recognize the bleeding that occurs when a white enamel is applied over certain types of red enamel. The red color will actually come through the white enamel while it is wet, resulting in a pink hue, or a spotty appearance on certain areas.

Cause of Bleeding

The cause of bleeding is the use of certain color coatings that are highly soluble in the solvents of finishes applied over them. When the final coats are applied, the coloring matter dissolves in the solvents and comes to the surface. Oil-soluble dyes and pigments are the chief offenders. They are soluble in the solvents used in lacquers, varnishes, and enamels. Spirit-soluble dyes will bleed into coatings containing large amounts of alcohol while the film is wet.

Once this cause is recognized, the possible remedies become at once apparent. *The obvious solution is the elimination of all oil-soluble dyes and pigments from the undercoats where the final coats are to be of the conventional type. The elimination of spirit-soluble dyes, where shellac or other spirit-soluble coatings such as urea finishes are to be used, will eliminate bleeding*

But suppose this is not possible because the undercoat or stain is already applied, or for other



IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

reasons. There are several procedures possible. Where oil-soluble dyes are bleeding through clear or opaque varnishes or lacquers, a thin intermediate coat of either orange, white, or dewaxed shellac will seal in the oil-soluble materials. In enamel systems some finishers use a little aluminum powder in the shellac.

Most oil-soluble materials are not soluble in alcohol. This is the proper procedure over penetrating oil stains or over the bleeding types of pigments, especially para and lithol toners. Subsequent coats will not cause bleeding because the solvents will not penetrate through the shellac film to dissolve and carry away the oil-soluble coloring matter. Of course, the shellac coat must be allowed to dry thoroughly, so as to reduce to the absolute minimum the softening action of subsequent coats.

Where spirit-soluble stains are the offenders, a thin intermediate coating of a spirit-insoluble material will seal down the dyes. Such a material as a vinyl coating or a polymer of an ester of acrylic acid will do the trick. Suppliers of protective coatings should be consulted about such materials.

Another solution to the problem where either type of bleeding is encountered, and the final coating is to be enamel, is to use a highly pigmented undercoat. Highly pigmented materials set up quickly and have very little flow, so that the solvents have little opportunity to carry the coloring matter to the surface. Sanding surfacers are excellent for this purpose. They must be allowed to dry thoroughly before recoating, so as to minimize the softening effect of subsequent coats.

Bleeding and lifting of finish coats can be prevented if you really understand what causes these troubles. . . . This article explains the cause, prevention and remedies for bleeding and lifting. Understanding is more helpful to the finisher than aimless, costly experimenting.

Quick-Drying Mist Coats Sometimes "Hold" a Bleed Color

Where the bleeding is not serious, but must still be eliminated, another procedure may produce results. Remember that the bleeding is caused by the solvents carrying the coloring matter to the surface. In order to do this, the coating must remain wet long enough for little convection current to be set up within the film, so that the coloring matter has time to come to the surface.

One or two mist coats of the intermediate or final material may stop the bleeding. Spray on very thin coats, and allow each coat to dry thoroughly before recoating. The films set up in a matter of seconds or minutes, so that the coloring matter cannot get through. A heavy, wet coat gives the solvents time to carry the coloring matter through to the surface. Even if this procedure seems to work, however, the finished job should be watched for days or even weeks before one can be sure the bleeding has been stopped. Sometimes bleeding occurs in dry films.

The safest procedures are to eliminate the bleeding dyes or pigments, or to use an intermediate coating in whose solvents the coloring matter is not soluble. *(To p. 82)*

BAKING ENAMELS
LACQUERS
ENAMELS
SEALERS
PRIMERS

NEW PERIOD
WOOD and METAL
FINISHES

SYNTHETICS
VARNISHES
SHELLAC
FILLERS
STAINS
SUPPLIES

A Combination Hard to Beat

NO. 100 NEW-LAC
SUPERIOR TO SHELLAC

Thins only with denatured alcohol . . . dries quickly to a pale, tough film. Seals completely and sands easily. Costs much less than shellac.

NO. 460 SYNTHETIC
GLOSS RUBBING VARNISH

Has unusual build . . . dries quickly to a hard, marproof durable finish . . . Rubs easily overnight.

Order a 5 gallon can of No. 100 New-Lac or No. 460 Synthetic Gloss Rubbing Varnish at drum prices for a production test.

NEW PERIOD PRODUCTION FINISHES

NEW YORK WOODFINISHERS SUPPLY CO. INC.
109 IMLAY STREET BROOKLYN, N. Y.
Established 1917

Sans-Marb

PLASTIC VENEERS ON SOLID WOOD PRODUCE LUSTROUS BASES FOR LAMPS

SEND FOR FULL COLOR BROCHURE OF WOOD GRAINS AND MARBLE RECREATIONS

The Meyercord Company

CHICAGO 44, ILLINOIS

What "Lifting" is, and What Causes it

Lifting is a condition where the final coats cause the undercoats to swell up and produce a characteristic wrinkled effect when dry. In extreme cases, the undercoat swells so badly that adhesion is lost.

This lifting condition is caused entirely by oxidizing materials in the undercoats. All finishers know what happens when a wet coat of lacquer is applied over varnish that has not thoroughly hardened. The film is penetrated by the lacquer solvents. The varnish film is not entirely soluble in these solvents, but it does absorb them. This absorption causes the characteristic swelling and lifting.

Precautions to Take to Prevent Lifting

Where the varnish or enamel has hardened for many months or even years, coatings such as lacquers that contain very strong solvents may be applied with safety if several very thin coats are used. Avoid flooding the surface, and the chances are that you will get by. However, this procedure is applicable only over relatively short varnishes, such as rubbing varnishes, or enamels that contain a minimum of drying oils. Spar varnishes, which contain relatively large amounts of drying oils, and oil enamels will usually lift, no matter how dry they are.

Some of the newer high-solids lacquers may contain oxidizing types of alkyd resins which may cause lifting troubles. Careful research has shown that such lacquers may be safely recoated up to a certain time after application. Then, for a period of days or even weeks, lifting will occur upon recoating. After this period, the lacquers may again be recoated with safety. By the use of oxidation inhibitors, this lifting period may be delayed so that no lifting will occur in ordinary practice. However, this requires careful control. Suppliers of such materials can give more specific advice on recoating.

Where returned merchandise coated with such lacquers must be refinished, the safest rule is to clean off the old finish. Another method is to use an intermediate coating of shellac. The shellac film is relatively insoluble in lacquer or varnish solvents. By applying the final coats in thin films, the difficulty may be avoided.

Of course, the best solution is to eliminate oxidizing materials altogether if the entire system is to consist of materials containing strong solvents. However, by using intermediate coats of relatively insoluble materials, or by using very thin coats of the final materials, the trouble may be avoided.

Lacquers That Require Less Solvents

An appreciable reduction in the amount of active solvents required in the formulation of lacquers, a development which will alleviate the critical shortage of ester solvents is announced by Hercules Powder Co.'s Cellulose Products Department.

The reduction is obtained through an improvement in the solubility of all RS types of Hercules nitrocellulose up to and incuding the 60 to 80 second viscosity type, and does not affect the high quality of nitrocellulose lacquers.

Laboratory and field results indicate that in some cases a reduction as high as 25% of the total active solvents can be made without any difficulty.

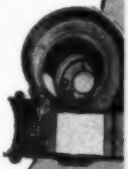
Although the study of methods for stretching solvents as far as possible in lacquer manufacturing was a result of the present critical shortage of ester solvents, the company believes that the improvement in solubility achieved may assist lacquer manufacturers in expanding their postwar markets.

DYKAST ENAMELS

for finishing Die Castings DIRECT FROM THE MOLD

for YOUR POST-WAR PRODUCTS

THE cost of finishing die castings can be reduced by using Dykast Enamels. These enamels can be applied directly to bare surfaces of clean zinc and aluminum die castings. Pretreatment is desirable only if castings are coated with oxide or are to be exposed to the weather. • Dykast Enamels are tough, durable and strongly adhesive. They cover well with a single sprayed or dipped coat and air-dry quickly to a uniform finish. • They are available in gloss or eggshell sheens, and in all colors, including black and white. • Send for full information—and also request our booklet. "Information on U. S. Government Specification Finishes," containing up-to-the-minute lists of specifications and the M & W finishes which meet them.



M & W

MAAS & WALDSTEIN COMPANY, NEWARK, N. J.

PRODUCERS OF LACQUERS, ENAMELS, SYNTHETICS AND SPECIALTY FINISHES FOR ALL PURPOSE
BRANCH OFFICES & WAREHOUSES: 1658 CARROLL AVE., CHICAGO, ILL. • 1228 W. PICO BLVD., LOS ANGELES, CALI

Questions and Answers

Finishing Walnut

We would like to get some information on the finishing of walnut wood. We are wondering whether or not we are getting a good finish in the quickest and most economical way possible. Our main difficulty seems to be in filling the grain of the wood. Is there a quick and satisfactory way of doing this without using several coats of lacquer?

We would appreciate a step-by-step description of how to obtain a satisfactory finish, with all of the pits eliminated. — C. J. Co. (Articles of Walnut)

It is not difficult to finish walnut to a perfectly smooth surface—with only a few operations. Something about your inquiry leads me to assume that wood filler is not being used at present.

Wood filler consists primarily of inert, colorless filling pigments such as silica, asbestine, etc., held together with relatively small amounts of binders such as oleoresinous varnishes, drying oils, etc. Color pigments and sometimes small amounts of dyes are added to the composition to color the filler and to stain the wood.

Japan driers, suspending agents, wiping agents, and carefully balanced solvent mixtures are used to give the filler the required working properties. The filler is usually delivered in paste form, to be reduced by the user for application. Sometimes it is delivered in liquid form, but the user must be sure to follow reducing and working directions to the letter.

Paste wood fillers are reduced by the user at the rate of 8 to 12-lbs. of paste per gallon of solvent. White (lead-free) gasoline, mineral spirits, or VM&P naphtha, or a mixture of them, are used for thinning. Sometimes special high-boiling petroleum solvents are used to slow down the setting rate in hot weather. Commercial kerosene should not be used for this purpose because it often contains "tails" or non-evaporating heavy ends which may cause serious trouble.

Filler should have a creamy consistency when reduced ready for use. It should be stirred at least twice daily to insure proper suspension of the pigments. Constant slow stirring by electric or compressed-air driven agitators is better.

Wood filler may be applied by spraying, brushing, or dipping. The filler is applied after staining and wash coating. However, some fillers contain sufficient coloring matter so that no staining other than sap staining is required. For the best clarity and wiping, however, the wash coat must not be omitted. This wash coat consists of 4-lb. white shellac* reduced in the proportion of one part of shellac by

---

*A "cut" in the proportion of 4-lbs. of dry shellac to a gallon of alcohol.

The Finishing Touch

The cost of production . . . wearing qualities and eye-appeal of your postwar products can all be improved by the proper *finish* and finishing *methods.*

Whether or not you are planning radically new products, their competitive position in postwar markets may be improved . . . in both price and appearance . . . by the use of modern finishes and methods of application.

Our Research Division will gladly help you. Just as in the speedy conversion to war production it helped many suppliers of vital war goods get started producing faster and better, it can help you be ready for speedy re-conversion to peacetime production. Your inquiry will be held in confidence and entails no obligation.

★ F-S ★

THE FERBERT-SCHORNDORFER CO.

12815 ELMWOOD AVE. • CLEVELAND 11, OHIO

volume to four parts of alcohol; or one part of lacquer sealer to two parts of lacquer thinner. The wash coat is applied lightly, air-dried two to four hours, and sanded lightly with fine sandpaper. Then the filler is applied.

While the filler is wet it has a glossy surface. When the surface becomes uniformly dull in appearance, the filler is ready to be hand wiped. Old rags, tow, and other such materials are used for this operation. The wiping is done across the grain, followed by a very light clean-up with the grain to remove smears. Then the remaining excess filler is cleaned out of corners and carvings with a rag wrapped around the end of a sharpened wood dowel. The filler should break off cleanly in the pores, leaving them filled flush with the surface of the wood.

Filler is usually air-dried overnight or force-dried one to two hours at 135°F. before proceeding. Then a coat of lacquer sealer is applied, followed by sanding, and then one or two coats of gloss or flat lacquer. On large surfaces, the lacquer should be rubbed and polished to a high gloss, or dull rubbed to a medium or a dull sheen as desired.

Where the utmost in toughness is required, you can eliminate the lacquer sealer and apply the first coat of lacquer directly over the filler. Wet-sand this coat with naphtha or mineral spirits. Then apply about two more coats of lacquer to finish the job. Rub the final coat if necessary. Of course, this procedure will not give the utmost toughness unless the very best lacquers are used throughout.

In general, the color of the filler that is pressed into the wood pores should be darker than that of the rest of the wood. This helps enhance the figure of the wood. If the color is too nearly the same or lighter, a muddy appearance and grey-looking pores will result.

If I have misinterpreted your inquiry, and if you are already using wood filler, perhaps your difficulty in filling the grain of the wood is due to other causes. Wiping the filler too wet, before it has shrunk into the pores, will cause the finish to have pinholes, pits, and a "hungry" appearance. When it is ready to wipe, the filler should have a crumbly feel under the finger tips. If it smears it is too wet. Usually the filler is ready to wipe three or four minutes after application. It is worked into the pores and cut off level with the surface by wiping across the grain. Wiping with the grain will remove the filler from the pores, another possible source of difficulty.

Perhaps the difficulty lies with the filler itself. Try several brands and select the one that fills best, with the least amount of shrinkage.

The difficulty complained of may also be caused by improper or insufficient drying of the filler before lacquer is applied. It is a safe practice to dry the filler as long as possible before proceeding. Lacquer applied over filler that is not dry will penetrate into the filler in the wood pores and cause the filler to swell. When the lacquer dries, the filler does not shrink back into the pores. A rough, uneven surface is the result.

Force-drying of the filler for two hours at 120° to 140°F. is highly recommended, to avoid the vagaries of air-drying. It is important in both air and force-drying to have good air circulation over and between all filled surfaces to remove solvents and bring adequate heat and oxygen to the surface, so that the filler may harden to a

FUTURE MAGIC

Out of this war have come many "secret weapons" . . . weapons so effective that previous conflicts pale by comparison. Peace, too, holds its potent promise of "secret weapons" . . . a promise which is already being fulfilled. New products, new applications, new techniques . . . in product finishing alone have come developments so startling, so revolutionary, that no product can conceivably remain unaffected. Chemistry must be the working partner of conversion . . . must certainly be included in your post-war planning. Our staff of expert finishing engineers will be glad to cooperate with your organization. Your inquiry incurs no obligation. Address The Stanley Chemical Company . . . manufacturers of Stanley Lacquers, Synthetics, Enamels and Japans . . . East Berlin, Connecticut.

Stanley Chemical

mass which is relatively impervious to lacquer solvents.

Regardless of how dry the filler is, however, the lacquer coats should not be put on too heavy; heavy coats will swell even bone dry filler. It is important that the lacquer solvents evaporate in the shortest time possible, for the longer they are in contact with the filler, the greater is the danger of swelling; hence the necessity for avoiding excessively heavy coats.

Still another source of difficulty may be excessive moisture in the wood. The moisture content should not be more than 10% for good results. Also, heavy ends or "tails" in the reducing solvent for the filler may cause poor drying. The result will be swelling of the filler, or perhaps pin holes caused by this trapped solvent escaping through the lacquer film. Excessive moisture has the same effect.

A good way to get a perfectly smooth surface is to wet-sand the first lacquer coat with mineral spirits or water. This sanding should be done carefully to prevent cutting through the film at corners and edges. Then apply a second thin coat of flat lacquer. Rubbing may or may not be required.

In summary, the simplest system would consist of wash coating, filling, sealing, and applying one or two coats of lacquer. Perhaps the wood may have to be stained first in order to secure the desired depth and richness of color. I suggest non-grain-raising stain for this purpose, applied by dipping or spraying. Then follow with the wash coat and filler. Some finishers prefer to add a little stain to the wash coat and eliminate the staining operation altogether. For the richest color, the filler should be sealed over with a glazing sealer, followed by a careful application of glazing stain. Or lacquer shading stain may be applied over the sealer. Then follow with one or two coats of lacquer.

I suggest that the simplest system, described above, be tried first. Then, if the results are not satisfactory, the variations suggested may be tried until the simplest system consistent with the desired results is worked out. Further details may be obtained from any manufacturer of wood finishing materials.

Water-Wash Compound Doesn't Work

We have installed a water-wash spray booth into which we are spraying a synthetic varnish. In spite of the fact that we have had two different companies ....., and ....., supply us compounds to keep this solution within a proper pH and to keep the foaming down, neither of these conditions is at all satisfactory. These companies have had their service men at our plant for several days at a time, and yet they have not been able to control it. One company has been using a LaMont Comparator. Neither of the companies has tried to use a titrating set.

Do you know of anyone who has had experience with a water-wash spray booth in which they sprayed a synthetic varnish? Can you recommend any compound, or company, or method which would help control this condition?

We have been subscribers to your excellent magazine for many years, and would consider any help you may be able to give us as an extra dividend to the benefits we have

Coat the Bases of Figurines

with

Cellusuede FLOCK

Increase the charm and utility of your figurines by coating the bases with Cellusuede Flock. Beside eliminating any danger of the figurines scratching or marring the surface on which they stand, Cellusuede's soft suede or velvet finish enriches the appearance, and gives your product a new eye and touch-appeal. Try Cellusuede Flock on your product—you'll find it easy to apply, inexpensive, quick. It is available for immediate shipment in a wide assortment of colors.

Write for Color Card, Prices, Samples

CP *Cellusuede Products, Inc.*

ROCKFORD, ILLINOIS

already received from your publication.—L. FURN. CO.

Unfortunately insufficient information is given in the presentation of your problem, therefore I am not able to definitely place the trouble. What make and type of water-wash booth is used? What is the trouble encountered? Excessive foaming or clogging of nozzles and piping system?

I have the highest confidence in both water-wash compounds mentioned in your letter. Both are good if they are used right, and since the representatives were there it is to be assumed that they tried every possible balance of solution. However, foaming troubles could be caused by the pump. If too great a pressure is created by the pump, foaming is sure to occur. This may quickly be tested by arranging a by-pass on the pump or enlarging the outlets, preferably the overflow dam and not the sprayers.

If the foregoing suggestion is not the solution to your troubles, I will be glad to analyze this further upon receipt of a more complete explanation of your troubles. —JAMES A. BEDE.

My experience has shown that compound must be formulated to suit the type of material being sprayed. If you will forward to my attention one quart of your synthetic varnish, also one quart of the solvent you are using, I will test the material at our laboratory and recommend a suitable compound.—CRYSTAL LABORATORIES.

Fluorescent lamps are favored for factory lighting because they give more light than incandescents from same amount of electricity.

J. A. Proven Vice-President of Sterling Tool Products Co.

At a recent meeting of the Board of Directors of the Sterling Tool Products Co., well known Chicago manufacturer of portable sanding machines, J. A. Proven, general sales manager, was elected to the position of vice president.

In his new capacity Mr. Proven will be closely associated with the company's president, Mr. S. A. Crosby

J. A. Proven, now Vice President of Sterling Tool Products Co., Chicago, Illinois

in the formulation of company postwar policies. He will also continue to head up and be responsible for policies relating to sales and advertising.

Joining Sterling Tool Products Co. about a year ago, Mr. Proven immediately attracted widespread comment in the trade by his organization and development of Sterling's postwar distribution and selling plans.

DeVilbiss Wins Third Army-Navy Award

Employees of The DeVilbiss Co., Toledo, Ohio, have been informed by Robert P. Patterson, Under Secretary of War, that they have won, for the third time, the Army-Navy Production Award for high achievement in the production of war material.

In maintaining the fine record which earned for them their orginal citation in December 1942 and another award in December 1943, DeVilbiss workers now attach the second star to their Army-Navy "E" flag.

The company's products, which include spray painting equipment, air compressors, exhaust systems, hose and connections, medicinal atomizers, powder blowers and some special items on Army-Navy contracts, continue to play important parts in the nation's war effort.

Announcing

ROCKLOID

A NON-CRITICAL ENAMEL

No need to wait for the return of alkyds. Here's a superior baking enamel with no critical materials in its formula. Available now for war contracts and essential civilian uses.

Rockloid, non-alkyd synthetic, possesses:

1. Extreme hardness with flexibility
2. Top notch adhesion—no flaking
3. Excellent resistance to salt spray, humidity, alkalies and solvents
4. Fine appearance and color retention.

For full information send for Technical bulletin on ROCKLOID.

NOTE: ROCKLOID may be had also in wrinkle finishes.

Our laboratory facilities and specialized personnel are at your service.

SINCE 1870

STANDARD VARNISH WORKS

2600 Richmond Terrace
Staten Island, New York

2600 Federal Street
Chicago, Illinois

"Speed-Alaka" Finish for Aircraft

Lacquer & Chemical Corp., 220 Fortieth St., Brooklyn 32, N. Y., has developed a new type of finish for Grumann Aircraft Engineering Corp. that permits an increase of speed, yet it conforms to Government specifications.

Grumann, seeking a finish with a new smoothness for greater speed, and yet complying with the requirements of Specification M-485-C and superseding Specification AN-L-21, put their problem in the hands of Lacquer & Chemical Corporation's research department. Alaka chemists produced "Speed-Alaka," upon which patents are now pending. This new finish air-dries in less than five minutes and permits an increase of speed both in Grumann's production as well as an increase of speed for the Grumann Hellcats. The material requires no buffing and may be made glossy to meet Specification AN-TT-L-51.

Fine "Hammertone" Finishes Available Again

The manufacture of "Hammertone" finishes, interrupted by the war, has been resumed by Maas & Waldstein Co., makers of industrial finishes, Newark, N. J. These finishes simulate hammered silver, copper, bronze, and other ornamental metals, and are for application on most metals or bakelite type (phenol formaldehyde) molded plastics.

Recent refinements in manufacture have improved the working qualities of the finishes and simplified their application, according to the manufacturer. A base coat of the color desired is sprayed on, and then quickly followed by a spatter coat of Hammertone liquid to produce the hammered pattern in the base coat. When a conveyor oven is to be used, parts may be placed on the conveyor chain immediately after spraying, and baked at medium heat. When the regular convection oven is used, the product is allowed to set for 15 to 20 minutes before baking. Either method, it is claimed, produces a lustrous metallic finish that is very tough and durable.

With a special spatter gun perfected by Maas & Waldstein, the size of the pattern is regulated by the air pressure of the gun, so that even an inexperienced operator can spray any desired pattern and maintain it.

The adaptability of Hammertone to continuous production methods makes it a practical finish for postwar metal novelties, heating units, air-conditioning equipment, metal cabinets and furniture, molded radio cases, and many other products, according to the manufacturer.

CBZ (Cadmium, Brass, Zinc) Metal Primer

CBZ Primer is a wartime development which reduces to a minimum, paint adhesion failures when finishing cadmium, brass, zinc and steel surfaces. Wartime substitution of zinc-coated steel for aluminum in radio construction brought the problem of paint adhesion to a critical point.

Development of this new primer began with a careful study of surface preparation. This alone resulted in considerable initial improvement in paint adhesion, but progressive deterioration of the paint continued.

Further careful study resulted in the development of CBZ primer which, in combination with efficient cleaning

Materials Supplies Equipment

Available just now without restriction as to use. You can have Hilo No. 916 Black Crystal for whatever use you desire.

Send your orders at once. While we are prepared to meet your existing needs, we cannot guarantee the future availability of this highly desirable item. First come, first served on No. 916 Black Crystal, subject only to rated war orders which must be given the right of way.

HILO

HILO VARNISH CORPORATION

42-60 STEWART AVENUE BROOKLYN 6, N. Y.

2420 Washburne Ave. Chicago 8, Ill. Park Sq. Bldg. Boston 16, Mass.

methods, practically eliminates adhesion failures.

A thin transparent wet coat is mandatory. Coverage is calculated on the basis of 1100-sq.ft. per gallon, applying a transparent coat. The primer is reduced in the proportion of two parts of reducer to one part of primer, and a reduction of the fluid flow of your spray gun to a point approximately half way between minimum and maximum capacity of spray gun, insures against application of uneven coat of varying film thickness.

When baking enamel is used as the finish coat you can air-dry CBZ primer 30 minutes, after which your enamel can be applied, and both primer and enamel can be baked in one operation in infra-red or convection oven. CBZ primer may be used under air-drying enamels and lacquers when a 30-minute drying interval is allowed between coats.

CBZ primer is sold in two colors, red or gray. The gray is light enough to work well under white or light tints, and the red is used under red enamels, lacquers or darker colors, or when a distinct shade is required to indicate that a primer coat has been applied. This primer is a product of Berry Brothers, Detroit 7, Mich.

Metal Cleaning Equipment

The Optimus Equipment Co., Matawan, N. J., announces a new line of metal washing, cleaning and drying equipment. The machines are generally classified as "Standard" and "Special." Standard types cover: 1) the continuous horizontal flat conveyor, suitable for a series of operations and a wide variety of work; 2) the cabinet-type washing and rinsing machine for large parts or small parts handled in baskets; 3) the semi-automatic, in which parts are carried in drums, baskets or racks, using the hot-air blast dryer; 4) the automatic turntable, equipped for two or three operations (the last being drying) on hollow parts or larger parts in baskets or holders.

The special machines include: 1) the continuous horizontal overhead chain conveyor for multiple spray or dip operations; 2) a machine with one chain or two chains and cross bars, for one or more spray or dip operations; 3) the continuous screw, or the 2-way rotating drum, fully automatic in operations, designed for one or more treatments of large quantities of small parts; 4) some special machines for roller bearings, large castings, aircraft parts, engines, compressors, etc.

For Cleaning Plastics

With more plastics coming into use for various purposes, the problems of cleaning machined items made of plastic sheets, tubes and rods has come up in certain factories. In an attempt to cleanse such parts, ordinary washing methods were futile. Solvent washing methods were impractical due to chemical reaction affecting the plastics. Thus a bottleneck was created. . . . It then became of paramount importance to develop a proper cleansing process.

Printloid, Inc., of 93 Mercer St., New York 12, N. Y., has evolved a method of washing the various insulating parts which they produce in large quantities from these plastics. The method involves successive baths in a special degreasing solution which does not affect the plastic, with a final wash in water. Printloid then dries the parts and packs them with gloved hands immediately thereafter. The parts arrive cleaned and gleaming.

As a result of the research and development of the cleansing process, all electronic parts produced by Printloid, Inc., are now subject to this treatment.

Fungus Resistant Coating

This material is intended to replace wax coatings on phenolic insulators, terminal blocks, junction blocks and also on the fixed windings of motors, generators and dynamotors. It can be applied by spray gun over any phenolic insulators, terminal blocks and junction blocks, the surface of which must be properly cleaned to re-

HORN

suggests—

NEW... LOW BAKE

SPEEDBAKE

PORCELAIN LIKE FINISH
NO DISCOLORATION
CLEAR AND IN ANY COLOR
ANY DEGREE OF GLOSS

A. C. HORN COMPANY
PRODUCTS FINISHING DIVISION
LONG ISLAND CITY 1, NEW YORK
CHICAGO • HOUSTON • LOS ANGELES

move any or all waxes, oils, or any other foreign substances that might interfere with proper adhesion. The coating should be baked 45 minutes at 250°F.

Its hardness, after being baked, is equal to bakelite. Tests show that it resisted boiling immersion for seven to eight hours in a 20% salt solution, as well as immersion for 200 hours in 5% salt solution at 70°F.

It is a product of Maas & Waldstein Co., 438 Riverside Ave., Newark, N. J.

Decals for Fire Extinguishers

A set of three decalcomanias for first-aid fire extinguishers has been made up by Walter Kidde & Co., Inc., New York 6, N. Y., manufacturers of fire-protection equipment. These decals, which can be transferred to the extinguisher itself or to the wall behind its station, indicate briefly and clearly the fires for which that particular unit is suitable, and those on which it should not be used.

Correct marking of extinguishers with these decals will direct the untrained or excited employee on the spot, preventing loss of time during the all-important first moments after the outbreak of fire, and helping to avoid misuse of equipment. A limited number of sets will be supplied free, and larger quantities may be had for a nominal charge.

New Water-Soluble Metal Cleaner

The Phillips Chemical Co., 3430 W. Touhy Ave., Chicago 45, Ill., announces Swirt, a new powerful emulsifying cleaner that is entirely harmless to the worker and the work. It acts efficiently upon all types of soil: grease, buffing compounds, cutting and machining coolants and oils, and is equally effective upon ferrous and nonferrous metals.

An added feature is that Swirt gives off no dangerous or disagreeable vapors to injure or annoy the operator; it is practically odorless. Being neither acid nor alkaline, it will not etch or pit and can be used safely on the most sensitive metals and alloys. Fire hazards are reduced because of its high flash point, (155° open cup).

Swirt may be used in practically any sort of container, from a bucket to a thermostatically controlled heating tank or degreaser. Its operation is simple: merely rinse in Swirt and flush with plain water. This cleaner does not dissipate readily by evaporation.

Its versatility suggests many other uses. In automatic washing machines Swirt is effective in weak dilutions; for equipment maintenance it may be used as a spray and has had many successful applications cleaning airplane, truck and Diesel motors, both inside and out, on the chassis. It may be blown dry with air or hand wiped.

Iridite Now Available in Colors

Rheem Research Products, Inc., of Baltimore 17, Md., developers of the Iridite process for rendering zinc and cadmium surfaces highly corrosion-resistant, has developed Iridite in several new colors. These new colors include maroon, blues, greens, bronze and blue-black.

With the exception of bronze, all colors are applied by the dips—a first for the basic coating and a second dip in a dye-bath. Iridite bronze is a one-dip basic coating.

Because the basic Iridite coating possesses excellent qualities as a paint base, the new Iridite colors can be clear-lacquered for greater durability.

Koroseal Tape Catalog

A new catalog section on its Koroseal Tape RX and Korolac RX, a solution of Koroseal easy-to-apply protective coatings for plating racks, has just been issued by The B. F. Goodrich Co., Akron, Ohio, and is now available upon request. The products were specially designed for plating

Here is the new prime coating for metal, specially made to meet war and post-war finish requirements.

Sprays on or Dips.
Dries dust-free in 5 minutes.
Dries to handle in 10 minutes.
Dries to practical hardness in 20-30 minutes.
Gives fine hard satin-smooth finish.

METL-PRIME saves time. No sanding needed before lacquer or other top coat. METL-PRIME saves trouble. Won't lift or bleed through even a white enamel finish. Write for any special finish information you may need.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY
ROCKEFELLER CENTER, NEW YORK 20, N. Y.

EGYPTIAN FINISHES

EGYPTIAN
SPECIALIZED PRODUCTION FINISHES

rack service, with application by the user and can be applied either separately or together.

Characteristics and properties of Koroseal and Korolac which make them valuabe for this service are outlined in the catalog section, together with well illustrated instructions on how they should be applied.

Koroseal is a flexible material made from limestone, coke and salt. It is not as highly elastic as rubber but can be made as hard or as soft as needed. It can be molded to any shape or used in solution.

Strips Off Insulation Coatings Quickly and Safely

A "non-creeping" liquid that quickly strips finishes from metal has been developed by Fidelity Chemical Products Corp., Newark, N. J. The liquid, marketed as Fidelity Stripper No. 306, was developed especially for rapid removal of insulating coatings from wires, and baked enamels from objects which cannot or should not be submerged.

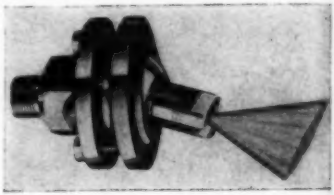
The stripper is applied by brush at room temperature, and, usually in less than a minute, it causes the finish to puff and leave the metal. The metal is then wiped clean, and since there is no residue or corrosive action, the stripped part may be soldered or refinished without any after treatment, according to the manufacturer. The liquid does not run, so that stripping may be limited to a specific section of coated surface.

Spray Booth Compound

Triad spray booth compound, a product of Detrex Corp., 13021 Hillview Ave., Detroit 27, Mich., is used to add to the water in water-wash spray booths. It conditions the water so that vital working parts of the water-wash system are kept clean and prevented from being fouled or plugged by paint pigments. Accumulated paint overspray is made non-tacky for reclaiming and may be floated in the sludge tank for skimming. Control of the solution concentration is simple. Since effective conditioning is accomplished at a low concentration, the difficulties of excessive foaming are eliminated.

Directional Change for Stationary Nozzles

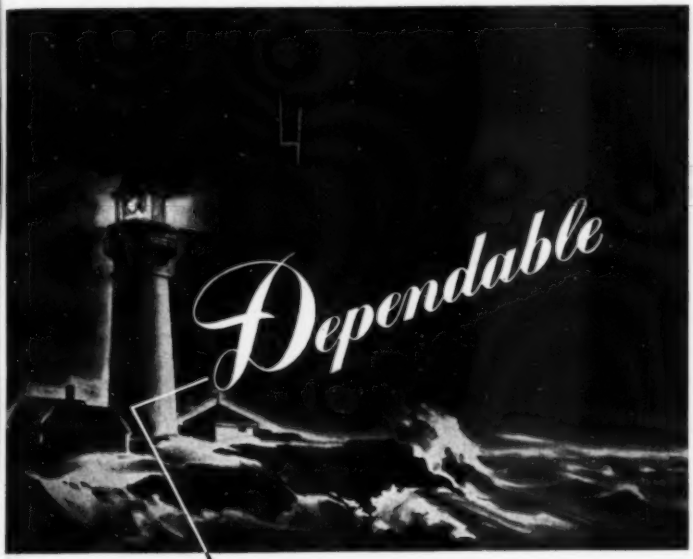
The new Spraying Systems adjustable joint, because of new ball and socket design, provides a full 50° nozzle adjustment in any plant at right angles to the face of the joint. The thick socket plates permit an unusually strong friction grip, more than sufficient to hold the nozzle in fixed position, regardless of how extreme the spraying operation. Three machine screws are quickly turned to adjust the joint as required.



An adjustable clamp-tight ball and socket joint was developed for service.

Various sized joints with standard pipe thread can be furnished, such as ⅛, ¼, ⅜, ½, ¾ and 1-in. Adjustable joints of this type have already been tested and proved. Typical applications are found in equipment for washing, rinsing, and paint flow-coating. For detailed information write Spraying Systems Co., 4017 W. Lake St., Chicago 24, Ill.

In the chemical field the American workman is backed up by a research force that has become a new power in the world during the last 2½ decades—a research force that has destroyed forever the old myth of German technical supremacy.



IS THE WORD FOR ARCO PRODUCTION FINISHES

● The mariner relies implicitly on the lighthouse beacon flashing in coded rhythm to guide him through the night. And the finishing superintendent knows he can place similar reliance in Arco Production Finishes to meet his specifications and performance requirements. Specify Arco and you specify dependability.

Paints for Industry THE ARCO CO.

CLEVELAND, OHIO • LOS ANGELES, CALIF.

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

★

Published the 18th of each month by PRACTICAL PUBLICATIONS, Inc.
1142 N. Meridian St., Indianapolis 4, Ind.
Telephone.....Riley 6771

★

President.....W. H. Rohr
Vice-President.....E. A. Dosch
Secretary-Treasurer.....R. E. Suits

★

Subscription Rates Per Year
U. S. and Possessions.....$2.00
Canada and Foreign Countries.....$3.00
(No subscription solicitors are employed)

Editorial

Substitutes to Go— And Those to Stay

Foster D. Snell recently addressed the Rotary Clubs of Brooklyn and of Glen Cove on the subject of postwar uses for wartime substitutes. He pointed out that the popular fancy that light metals will displace steel is negated by the fact that volumetrically the capacity for aluminum and magnesium is not much more than 1% of the steel making capacity.

Further, the idea that plastics are going to replace any major portion of metals is exploded by very similar data. While the transparent plastics, such as those used in bomber noses and the projected postwar polystyrene are interesting, when considered as replacements for glass they are much more expensive and scratch more easily, will have a large but nevertheless restricted applicability.

Dr. Snell stated that the production of synthetic rubber by the United States was the most colossal gamble in chemical history and won. Postwar, because of slow return to production from the plantations and possible natural destruction of some plantations, he considered it a fair guess that somewhat in excess of 50% of the United States requirements for rubber would be produced synthetically. One particular reason for this is that synthetic rubber can and will be tailored to fit many jobs where natural rubber has proven less satisfactory.

He predicted that nylon and other silk replacements will retain the major portion of the field formerly filled by silk and that synthetic drying oils which are presently replacing tung oil will successfully hold the better part of that market.

Aside from the examples mentioned, the great majority of wartime substitutes have been more expensive and less satisfactory, and face early disappearance from the picture when the original materials are available. An example of this is in commercial packaging where only non-rigid vacuum packaging shows any real promise of major postwar success.

The answer to

YOUR PROBLEM

may be in

UR FILE

We invite you to submit your urgent or difficult finishing problems to our staff of experts for quick action.

RANDOLPH

FINISHING PRODUCTS CO.

RLSTADT NEW JERSEY

OPES · LACQUERS · ENAMELS

Placing Your Men Returned From War

★ Many finishing plants, in common with other progressive and patriotic companies, are "saving" for the returning veterans the jobs, tools or desks that were abandoned by employees to answer the call to arms. Many of these organizations, aggressive and well-meaning, believe that they will have fulfilled their promises, concrete and implied, when G. I. Joe is welcomed with a handshake and his old niche is cleared for him, or a like one is created to place him again on the pay roll.

That plan of veteran reabsorption ignores — or overlooks — the fact that the man in the services changes astonishingly during his hitch, especially if the tour of duty has taken him overseas—brought him into contact with the enemy. Newspapers are full of instances where heroes, barely turned their majorities, have been promoted to responsible positions of command; and where the same write-up, in the last paragraph, states that the hero was formerly "connected with Blank & Co. as a junior clerk." Obviously the man who has matured to the point where his initiative, displayed against a trained enemy, stands out against the background of his fellows, is not going to be satisfied (nor is he still suited) to discharge the duties of a clerical or other bottom-rung position.

Many finishing plants, perhaps more generally than those in other industries, have been liberal with pay equalization plans, furloughs or leaves to the armed services, and other manifestations of their desire to maintain relations with the absentees but they, in common with others, must view each returning veteran not as a candidate for his old job, but for new placement in a post where not only his prewar experience, but also the training and broadening gained in uniform, can be made productive—and adequately recompensed.

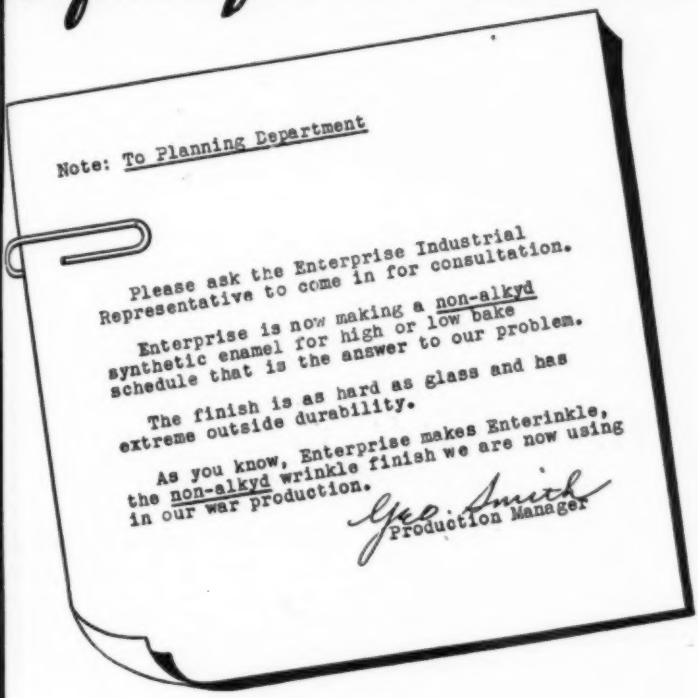
Many of the little human pegs, lifted from the structure of industry by mobilization, have changed so greatly that there is no resemblance between the old hole and the expanded peg. Attempts to rebuild the prewar structure on the old basis cannot but make for dissatisfaction and inefficiency. And, while the industrial unit may not be able to utilize completely the ten years of maturity which a man is said to gain from two years of warfare, it and the returned veteran will profit over the years if every effort is made to find a new post commensurate with the man's industrial ceiling, rather than to reinstall him where he once labored.
—ELTON STERRETT.

★ Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

Stir Your Material To Get Uniformity

★ A surprising amount of trouble is caused in industrial finishing departments by simple failure to adequately stir the finishing materials. Sometimes the producer is accused of supplying non-uniform or inferior materials when in reality the non-uniformity comes from failure of the user to stir the materials properly. *(Cont. page 104)*

Request from Production


Note: To Planning Department
Please ask the Enterprise Industrial Representative to come in for consultation.
Enterprise is now making a non-alkyd synthetic enamel for high or low bake schedule that is the answer to our problem.
The finish is as hard as glass and has extreme outside durability.
As you know, Enterprise makes Enterinkle, the non-alkyd wrinkle finish we are now using in our war production.
Geo. Smith
Production Manager

Your Inquiry Will Be Given Prompt Attention

ENTERPRISE PAINT MFG. CO.

Industrial Division

CHICAGO 7 **ILLINOIS**

Many finishing materials contain suspended pigments and other materials which tend to settle to the bottom of the container upon standing undisturbed. While manufacturers of finishing materials minimize this tendency as much as possible, the best they can do is delay the settling and prevent hard caking on the bottom. Because pigments are higher in specific gravity than the liquids in which they are suspended, they will eventually settle to the bottom.

Failure to stir finishing materials may cause all sorts of trouble. Some enamels are made with as many as six or more color pigments. Some settle faster than others, so that unless thoroughly mixed, a sample each from the top, middle, and bottom of the container will show three different colors. Green enamels may be blue at the top, green at the middle, and yellowish-green at the bottom. In addition, the sample from the bottom contains too much pigment, and will dry dull, even if the material is a gloss enamel. The sample from the top will be deficient in hiding power. I have seen a green automobile with sections repainted after a wreck. Each section showed a different shade of green because the painter failed to properly stir a quart can of the enamel.

Not only must the material be well mixed in the original container; it must be kept stirred while in use. If pressure tanks without agitators are used, enough settling may occur overnight to cause serious trouble. Pigment stains settle out rather rapidly, as well as flat lacquers and lacquer sealers. The only safe rule is to agitate the material after every pause in operations.

Workmen should be instructed carefully on proper methods of agitation. Simply rolling the drum or shaking a can of material by hand will not suffice unless the pigments are light and fluffy. Special agitating machines for shaking or rolling are available for all containers from drums to pint cans. They are remarkably effective because the agitation time can be extended into hours if necessary. The containers used need not be opened until after the contents are well mixed.

Agitator drums are useful. Some agitators may be driven by compressed-air motors. The clamp-on type of agitators, driven by compressed air or electricity, are extremely useful. These mixers are relatively inexpensive. Mixing time should be from one-half to two or three hours. The blades and shaft may be extended through the bunghole of a drum that is not of the open-head type.—R. H. WAMPLER.

McCloskey Varnish Co. Builds New Plant in Portland, Ore.

McCloskey Varnish Co. of the West announces a new plant for Portland, Oregon. In its program of postwar expansion and development, the McCloskey Varnish Co. has started this new unit to better serve the trade in the Pacific Northwest.

With WPB approval, contracts have been let and construction begun for a modern plant in Portland. The plant will be up-to-date in all details, with the latest type of gas fires. Brick construction will be used throughout.

The plant is being erected on a plot of ground with 200-ft. frontage on N. W. Yeon Ave., with a depth of approximately 300-ft., in the heart of Portland's manufacturing district.

McCloskey technicians have combined the experiences of plants in Philadelphia, Chicago and Los Angeles with the idea of embodying their best thoughts in the new Portland unit for the efficient manufacture of varnish products.

The Portland unit will work in close contact with the parent company in Los Angeles, and with the main McCloskey organization in Philadelphia.

thods of
the drum
terial by
s the pig-
. Special
aking or
all con-
int cans.
ctive be-
can be
ecessary.
l not be
tents are

ul. Some
by com-
clamp-on
by com-
are ex-
xers are
ing time
o two or
nd shaft
he bung-
t of the
AMPLER.

Builds
, Ore.

the West
Portland,
postwar
the Mc-
rted this
trade in

cts have
egun for
he plant
ils, with
. Brick
ghout.
n a plot
tage on
h of ap-
heart of
rict.
e com-
ants in
Angeles
heir best
unit for
varnish

in close
pany in
ain Mc-
delphia.

V-2532 GOLD LACQUER

one of the New PHEN-COTE *Series*

A new thermo-setting oil-free Phenolic Plastic resin finish with many applications and adaptations to specialized conditions.

V-2532 PHEN-COTE is adaptable to lining containers for oils, greases, solvents and many corrosive chemicals.

V-2532 PHEN-COTE is used as a food container lining for fish, meats, etc.,—it will fabricate, process and is resistant to fats and oils encountered in food products.

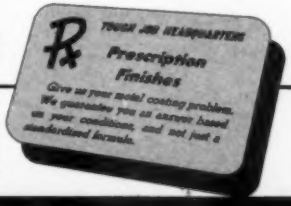
V-2532 as an exterior protective coating will fabricate, process and resist double-seam on electrolytic, hot dipped, and black plates.

APPLICATION BY ROLLER COATING MACHINE—BAKED

Write today. Outline your specific Finishing problem.

THE WATSON-STANDARD CO.

Manufacturers of
PAINTS • VARNISHES • INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS



FACTORY AND GENERAL OFFICES: PITTSBURGH, PA. • WAREHOUSES: BOSTON, BUFFALO, DETROIT, NEW YORK

Gloomy Forecast — An overflowing bucket of cold water is poured on those glib prophets of a brave new world by Leo Cherne, the brilliant young Executive Secretary of the Research Institute of America, who is economic consultant to countless big corporations. He anticipates several troubled years following the end of the war, with unemployment rolls possibly reaching several millions.

We have been reading Cherne's best-selling blueprint of peacetime trends, the provocative volume entitled *The Rest of Your Life*. Although it will raise your blood pressure, the book should be required reading for every alert business executive. "Most of the major domestic and international problems will still be sitting on your doorstep," he writes. "To expect otherwise is like expecting that pneumonia will have cured the physical debility that brought it on."

* * *

What Color Can Do—Will Gerber has written a diverting article for *Read* Magazine, entitled: "There's More Than Meets the Eye in Color." He points out that red is psychologically stimulating; yellow is cheery; blue is quieting to the nerves; green soothes and exhilarates.

Here is one example of the potency of color that is cited by the author: A factory near New York changed its interior wall tint from a pleasant tone of yellow to a cold blue. Throughout the winter months, the workers constantly complained that they felt cold. A subsequent repainting job, back to the old shade, quickly restored employee morale and efficiency.

* * *

More Magnesium Products—As a sample of things to come, a magnesium wheelbarrow weighing 30-lbs. was exhibited in New York a few weeks ago by Dr. Willard H. Dow, president of the Dow Chemical Co. By way of comparison, he reminded his audience that an ordinary wheelbarrow weighs 85-lbs.—almost three times as much.

Magnesium, the third most plentiful element in the earth's crust, is being groomed for startling peacetime developments. Now used largely for pilots' seats, bombs, rocket launchers and bomber wheels, some of its champions believe it will emerge from the war as a basic structural material.

* * *

Fireproof Coating—A noteworthy step in the development of fireproof paints is reported by *Business Week*. According to this authoritative journal, postwar homes will be protected with pigments which will include a mixture of calcium carbonate and a resin made by treating paraffin wax with chlorine. When this combination is subjected to high heat, we are told, it will break down and release carbon dioxide—a highly efficient fire extinguisher.

* * *

Presenting "Arboneeld" — Du Pont's revolutionary process for impregnating wood, which has already been discussed in this col-

YARNALL SPECIFICATION FINISHES

...Work in Production, Keeping Vital War Materials at Peak Efficiency...

YARNALL LABORATORIES keep in touch with Armed Forces and Government Bureaus so that you can get immediate information and service on constantly changing specifications.

Many large manufacturers of war materials are now using YARNALL facilities and beating production schedules.

YARNALL SERVICE Includes...

Speedy delivery of specified materials.

Service of trained technicians and representatives.

Setting up of finishing production schedules.

Breaking of bottle necks and consequent delays.

Making specification materials work in your plant.

Write for our brochure listing some of the Government Agencies purchasing war equipment, and briefly describing some of the more important finishing materials now being used.

YARNALL PAINT CO.

Industrial Division

PHILADELPHIA - - - - PENNSYLVANIA

umn, has been officially christened "Arboneeld." Although not fully developed in the commercial sense, the technique has reached a point where some processors are almost ready to start regular treatment of wood products.

The "Arboneeld" solution forms a resin within the wood structure, imparting entirely new properties to our forest products. Pine becomes as hard as maple, and maple attains the density of ebony. Lumber thus treated can be worked more accurately, is more resistant to flame, rot, pests and chemical action. Among the advantages to furniture manufacturers, the finished products will be less susceptible to surface damage, while drawers and doors will lose their tendency to stick in humid weather.

* * *

Furniture Industry's Future—While auto manufacturers moan that reconversion may require three, six or nine months, the furniture industry is blithely confident that retooling for peacetime production will be a simple task. The big problem, it is believed, will be clearing plants of wartime inventories.

All observers seem to agree that the know-how accumulated in the past few years will result in numerous peacetime manufacturing shortcuts and improvements. A large amount of the old manual detail has been eliminated, without diminishing quality in any appreciable degree. The furniture industry, in brief, is looking forward to a rosy future.

* * *

Buyers' Strike?—A stern warning on postwar price policies was delivered recently by E. H. Van Delden, of the Libby-Owens-Ford Glass Co. Addressing a meeting of the National Association of Manufacturers, he reminded his audience that the American public has already demonstrated its unwillingness to buy excessively priced goods since the war began.

Increased labor costs alone, he pointed out, may mean a 25% rise in peacetime prices of autos, radios, refrigerators and other household goods. The possibility of consumer resistance to these higher costs, added Van Delden, must be weighed in all sales forecasts.

* * *

Fewer Distributors—A radical revamping of its dealer franchises is being contemplated by Nash Motors for its postwar operations. Although production is expected to be tripled, the company is planning to eliminate several hundred of its prewar distributors.

According to H. C. Doss, vice-president of the company, the aim is to build up an organization of financially stable dealers. Discounts will be increased, and extra percentages will be allowed for volume sales. Nash is basing its plans on the assumption that postwar sales of automobiles will average six million units annually for the first five years.

* * *

Paint Stands 2500°F.—A paint designed to stand up under temperatures of 2500°F., and more, has been announced by the Quigley Co., of New York. Supplied in a generous range of colors, the manufacturers describe their product as an odorless, non-inflammable, non-irritating formulation.

When applied to extremely hot surfaces, such as furnaces and stacks, spraying is the recommended procedure, since the heat would quickly destroy paint brushes. On wet or cold areas, the paint film is set by the use of heat—employ-

Now Available **AGAIN!**

BALLOU'S IMITATION
CHROME ALUMINUM PASTE

- Will produce a beautiful imitation of a real plated finish when used in conjunction with quick bake synthetic or varnish type vehicles.

Send for Sample and Prices

EDWARD C. BALLOU CO.
6 Varick Street New York 13, N. Y.

Just for the Record

CEL-U-LAK
A complete line of cellulose derivative lacquers and enamels

FORM-A-ROC
A unique line of quick-baking, tough adhesive synthetic enamels

Remember these names.
After V-day they will mean something to you.

The Varnish Products Co.
5208 Harvard Avenue Cleveland, Ohio

Wear Master
TRADE MARK REG.
SEALERS
★ Specially formulated for your job, under careful laboratory control.
★ Dependable, easy working, economical — sand easily.
★ Bond succeeding coats and insure a stronger film.
★ Give your finishes the BUILD that SELLS FURNITURE.
Send for details
THE FINISH SELLS YOUR PRODUCT!
STANDARD INDUSTRIAL PRODUCTS, INC.
Wear Master
EVANSVILLE 4, INDIANA

ing a blow torch, aceytlene burner, or a bank of infra-red lamps.

* * *

Aluminum Coal Cars—In a noteworthy experiment, the Burlington Route recently rebuilt a hopper car in its own railway shops. Aluminum was used for the entire body. The resulting weight saving was startling. A 58-lb. side panel weighed 116-lbs. less than a similar section made of steel. The total weight economy amounted to nearly 8000-lbs. for the car.

There is an additional factor that makes aluminum attractive for this purpose. The chemical action of coal has always been a serious problem when steel gondola cars were used; aluminum, however, is non-corrosive.

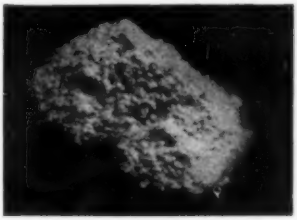
* * *

Machine Tool Future—The outlook for the machine tool industry seems to be a huge question mark. Until an overall policy has been set on the vital subject of disposal of government-owned surplus stocks, manufacturing in this field will be seriously impeded.

Some observers believe that export sales to Russia, Latin America and the Far East may aid in disposing of our huge wartime stocks. In general, the prospects seem most cheerful for highly specialized new machine tools, since most industrial plants will be on the lookout for production economies to meet postwar competition.

* * *

Shuts Out Noise—An interesting story has come to light, showing how vinylite plastic is making a tangible contribution to speeding up plane production. Everybody who has ever visited an aviation plant is aware of the nerve-shattering din produced by the huge battery of riveting machines. It has been generally recognized that



Perhaps

FLOCK

can improve your product

The application of finely cut fabric particles can change the color, surface and functional aspects in many important ways.

FUNCTIONAL

Used in airplane, auto and numerous other industries for—

SOUND DEADENING — TEMPERATURE INSULATION — INTEGRAL GASKETS — SHOCK-ABSORBING SURFACE — NON-MAR SURFACE PROTECTION.

DECORATIVE

Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

SUEDE LEATHER—FURNITURE UPHOLSTERY FABRICS—AIRPLANE AND AUTO UPHOLSTERY FABRICS — VELVET — VELOUR — MOHAIR.

Request Samples and Prices

RAYON PROCESSING CO. of R. I. INC. 55 TREMONT ST. CENTRAL FALLS, R. I.

HELLCAT PILOT DOWNS NINE JAPS

AIRPLANES
GUN STOCKS
BOMB SIGHT BOXES
TOOL CHESTS
MARINE PARTITIONS
RADIO INDUSTRY, ETC.
SKIS
INSTRUMENT BOXES

COMMANDER DAVID McCAMPBELL of Los Angeles became the Navy's top carrier-plane Ace, with 30 planes to his credit, during the recent Phillipines action. When the dog fight started, Commander McCampbell and his wingman, Lieutenant Roy Rushing of McGehee, Arkansas, tore into 40 Jap planes, and before the scramble was over the Commander had scored the amazing total of 9 planes downed, with 3 probables, the highest number in one action; and Lieutenant Rushing scored 6 downed, and 2 probables.

His record in this combat brought him into second place among all pilots. Major Richard Bong of the Army is still in first place, with 33 enemy planes to his credit.

Listed here are a few of the war products now being coated with our materials. Phone, wire or write and let one of our finishing experts help you "keep production rolling."

BACK THE ATTACK . . . . . BUY WAR BONDS

The Lawrence-McFadden Co.

Headquarters for Fine Finishes Since 1875

7430 STATE ROAD PHILADELPHIA 36, PA.

Fine...Fine
Superfine!
Claremont Flock
Finely cut fabric particles, many colors, many types . . . fluffy, yet filling. Excellent for sound-proofing, insulation and surface protection. Also, applied decoratively to assimilate suede leather finishes, velvet, velour and mohair upholstery effects. Full details, samples and prices upon inquiry.
COTTON
WOOL
RAYON
CLAREMONT WASTE MANUFACTURING CO.
The Country's Largest Manufacturers of Flock
CLAREMONT, NEW HAMPSHIRE

this constant noise has been an important factor in absenteeism and labor turnover.

Now a soft plastic ear plug has been introduced to overcome this problem, and it is reported to be a huge success. The device was originally developed for the use of artillerymen, and is currently being released for other war plants. Bell Aircraft, the first to use the new plugs, reports a definite reduction in fatigue among workers.

* * *

For New York Visitors—We are gratified to note that our service in obtaining free radio broadcast tickets for readers of INDUSTRIAL FINISHING is proving increasingly popular. When planning a trip to Manhattan, drop a line to: *Lawrence H. Singer, 130 West 86th Street, New York 24, N. Y.*

Among the sponsors currently cooperating with us are: Camel Cigarettes, Cities Service Co., Lehn & Fink Co., and the Colgate-Palmolive-Peet Co.

New Broadway shows worthy of your attention are: "Bloomer Girl," the new smash-hit musical; "Soldier's Wife," Rose Franken's new success, and "While the Sun Shines," a pleasant comedy with Melville Cooper.

More readers are taking advantage of Mr. Singer's service.—ED.

Progress Makes Every Worker More Productive

★ Organized industrial research is the road to economic progress. Results spring from the teamwork of scientific development and capital investment, stimulated by the continuing demand of the American people for the economic progress that only this combination can produce.

Our high standards of living, and our hope for the future, lie in our productivity. That is the key word of our whole industrial mechanism.

Why does an American workman earn more in one day than his Oriental counterpart earns in a month? The big reason is that he produces more. He produces more because of the research and the investment in tools and equipment that go into the making of his job, because of the technology that stands behind him, because of the skill that he has acquired.

How much technology stands behind the Oriental carrying imported coal on his shoulders over a mountain range ribbed with some of the richest untouched coal veins in the world? He is not productive because he lacks the backing of a free science in a free land.—COLE COOLIDGE.

*Guest Editorial.

M.M.&Mfg. Co. Acquires Mid-States Gummed Paper Co.

Acquisition of the Mid-States Gummed Paper Co. of Chicago, one of the larger concerns in the field of gummed paper and cloth tape and gummed label manufacture, is announced by Minnesota Mining & Mfg. Co., St. Paul, Minn.

Part of a diversification program begun several years before the war and resumption of which is contemplated in the postwar period, the transaction places Minnesota Mining & Mfg. Co. in two distinct fields of tape produc-

Leakproof Air Blow Gun

Use this gun for blowing dust, dirt or lint from the surfaces of parts and products to be coated with paint or any other kind of coating. It will improve your finish tremendously.

Also useful for blowing out moisture or other entrapped liquid from crevices, seams or indentations in parts to be cleaned or painted.

Fits comfortably in the palm of hand. Has button control air valve. Special composition washers prevent leakage. We can furnish any type nozzles—round, pointed, flat or 10-in. extension. Nozzles are interchangeable and renewable. Every plant should have one or more. Write us!

G. M. MANUFACTURING CO.

Engineers, Mfrs. of Complete Spray Equipment
216 N. Clinton St. Chicago, Ill.

Tectyl stops RUST!

30,000 Gallons for Pearl Harbor
—that was the government's order on DECEMBER 8, 1941

Government salvage experts know what Tectyl 511 has done on metal surfaces that have been submerged in sea water. Tectyl removes every vestige of water and SEALS the surface against rust and corrosion—Whatever your own special rust-prevention problem may be, there's a Tectyl product that will solve it. Easy to apply and remove, economical to use—Tectyl protection is *positive*. Write NOW, indicating your corrosion problem, and we will send you Tectyl bulletin with complete application data.

TECTYL
STOPS RUST

VALVOLINE OIL COMPANY
456 Culvert St. Cincinnati 2, Ohio
Refinery at Butler, Pennsylvania
General Offices, Cincinnati Ohio

tion. Originator of "Scotch" Tape and pioneer in the field of pressure-sensitive adhesives, the St. Paul concern will now also engage in the manufacture of water-activated tapes and labels.

Paint Chemist's Thanksgiving

We, the above, give thanks you see
That we are in this industry!
We really have not one complaint
No matter what, we did make paint.
No shortage did our ardor tarnish,
We could simply use another varnish.
Our thanks that linseed oil, though dear
Still came from the Western Hemisphere.
Even when tung oil stocks dropped faster
We still had available, good old castor.
Finally, when lack of resin was causin'
Trouble, we still had with us—rosin!
Thanks too for customers kind
A better group we'll never find!
They accepted alternates, great delay
But continued loyal to this late day.
When knowing that soon war shall cease
We look to next Thanksgiving, and Peace!

—PAINT CHEMIST.

Classified Advertising

FINISHING ROOM FOREMAN

Wanted by furniture manufacturers of Bedroom and Sun Room furniture; excellent opportunity for present and postwar. Give full details. Address IF-141, care Industrial Finishing.

WOOD FINISHER WANTED

Experienced man to run job shop on salary and bonus basis. Spray, dip, flock and tumbling of small parts; also able to mix and match own colors. Location, northside Chicago. Address IF-142, care Industrial Finishing.

WANTED

Experienced Industrial Finishing salesman for city of Chicago, by moderate-sized aggressive young organization. Give detailed experience and qualifications. All replies held strictly confidential. Address IF-145, car Industrial Finishing.

SALESMAN WANTED

To travel well-established territory in Illinois, Michigan, Wisconsin, Minnesoto for our well-known Bulls-Eye Shellac line. Permanent position for high-type man. Previous experience and familiarity with territory preferred. Only written applications will be considered. Salary to start; bonus later. Write in confidence stating particulars, age, expectations, etc., to EDWARD HICKS, care of William Zinsser & Co., 516 West 59th St., New York 19, N. Y.

METAL SPECIALIST

Thorough knowledge metals, broad experience in metal manufacturing and finishing processes. Sales-minded to assist sales and service organization on problems arising in field. Our products extremely essential in all kinds of production, processing and maintenance work. Headquarters N. Y. C. Willing to travel. Give details experience, age, etc. Address IF-143, care Industrial Finishing.

SALESMEN WANTED

Industrial lacquers and synthetics; substantial earnings; good postwar opportunity. Metropolitan New York. Address IF-149, care Industrial Finishing.

WE BUY DIRTY SOLVENTS.

Don't throw away spent cleaning thinner, degreaser residues, etc. Send us a sample for quotations. We also reclaim for customers. DYTEX CHEMICAL CO., 267 Plain, Providence, R. I.

CHEMISTS.

Graduates. One electro-chemist with research experience in plating metals; one with inorganic research experience Preferable on application side in phosphates, silicates or carbonates; two research assistants. Permanent; location downtown New York. Give full details. Address IF-146, care Industrial Finishing.

INDUSTRIAL FINISHES SALESMAN ALSO SERVICE MAN

Wanted: For New England, also New York state, served by Eastern plant of reputable large manufacturer of Synthetics—Enamels—Varnishes—Lacquers. Salesman and Service man must be experienced with large industrial consumers. Technical background preferred. Submit full qualifications and detailed information in first letter. Will be held in strict confidence. Address IF-136, care Industrial Finishing.

SALESMAN WANTED

Established manufacturer of Industrial Coatings (Lacquers, Synthetics, Stains, Fillers) has unusual opportunity for Finishes salesman for Eastern Seaboard territory. The man we seek is experienced, can service accounts, knows "who" and not alone can do a selling job himself, but can hire and manage men for the development of a large Industrial Finishes Division. We do a volume business now and will expand. This is a real opportunity to develop into the managership of Division on a salary, expense and participation plan. Your reply must state age, complete resume of experience and set forth in detail your qualifications for this unusual opportunity. Your response will be held in strict confidence. Address IF-147, Industrial Finishing.

INDUSTRIAL SALESMAN WANTED
For Indiana by responsible manufacturer of varnish, lacquer and enamels. Give experience, age, etc. Address IF-144, care Industrial Finishing.

ELECTRO-PLATING AND FINISHING EXPERT.

Thorough knowledge and broad experience in electro-plating and metal finishing processes. Wanted to work with well established sales and service organization manufacturing products extremely essential in all kinds of production, processing and maintenance work. Headquarters N. Y. C. Must be willing to travel. Give full details. Address IF-148, Industrial Finishing.

COATINGS ENGINEER WANTED.
Experienced engineer to supervise spraying of paints, enamels and other finishes. Actual practical experience, plus some knowledge of the chemistry of paints desirable. Write to Supervisor of Technical Employment, 306 Fourth Ave., Pittsburgh 30, Pennsylvania, for application form. WESTINGHOUSE ELECTRIC & MANUFACTURING CO.

BAKING ENAMEL SELLOUT.
110 — 55-gal. drums Du Pont Black Baking Enamel @ 75c.
60 — 55-gal. drums Forbes Grey Baking Primer @ 65c.
In excellent condition. All or part. No priorities required. RAND CHEMICAL PRODUCTS CO., 2335 So. Mich. Ave., Chicago 16. Phone CALumet 2866-67.

FOR SALE

Continuous cleaning, dipping and baking unit, 120-ft. long by 16-ft. wide by 14-ft. high. Two double roller chains through system. Speed variable from 1 to 3 F.P.M. at average speed of 1.9 F.P.M. The wash and rinse time is 10 minutes each, drying time 15 minutes, baking time 12 minutes. Maximum baking temperature 350 degrees F. Can handle work 30-in. wide by 120-in. long. Unit designed for oil but can be diverted to gas. Entire unit complete with motors, fans, pumps, controls, etc. For price and further details write, MORTON MANUFACTURING CO., 5105-43 W. Lake St., Chicago 44, Ill.

MISKELLA
INFRA-RED OVENS & APPLIANCES
INSULATED - REFLECTIVE - SECTIONAL
BY
INFRA-RED ENGINEERS & DESIGNERS
1424 E. 40th STREET - CLEVELAND, OHIO
We sell lamps, too!

Our New
PERMAG COMPOUND
Used Successfully in the Bullard-Dunn Process
—for removal of grease from metal parts and in defilming of tin in the Bullard-Dunn process.
This PERMAG Compound has stood all tests and been approved by the Bullard Company. Now available to licensees of the process.
Write us about your metal cleaning problems. We can help you.
Magnuson Products Corp.
50 Court St., Brooklyn 2, N. Y.
Representatives from Coast to Coast
In Canada: Canadian Permag Products Ltd., Montreal - Toronto

MIRACLE
5 Gallon BLUE BOY Model
PAINT REJUVENATOR
Restores Paints, Lacquers, Enamel Products and Pigment Primers, to original consistency in 3 to 10 minutes without opening the can. Available for Round or Square 5-gallon cans. Explosion-proof electrical equipment if desired. Also other units from ¼-pint to 50-gallon drum capacity available. Originators of Paint Rejuvenating equipment—ten years —thousands of satisfied users.
Miracle Paint Rejuvenator Co.
127 E. 9TH STREET ST. PAUL, MINN.

Index to Advertisers

Advance Paint Co. ..... Third Cover
Aluminum Industries, Inc. 41
American Chemical Paint Co. 33
Arco Co., The 99

Ballou Co., Edward C. 109
Baughn Chemical Products Co. 118
Behlen & Bro., Inc., H. 12-13
Berry Brothers 59
Binks Mfg. Co. 46-47

Cellusuede Products, Inc. 89
Claremont Waste Mfg. Co. 112
Classified Advertising 114
Clinton Company, The 62
Commercial Solvents Corp. 22

Day & Co., James B. 77
Despatch Oven Co. 23
Detro Sales Co. 117
Detroit Surfacing Machine Co. 2
DeVilbiss Co., The 24-25
Dolan & Co., V. J. 4
DuPont de Nemours & Co., E. I. ..60-61
Duralac Chemical Corp. 19

Egyptian Lacquer Mfg. Co. 97
Electric Sprayit Co. 57
Enterprise Paint Mfg. Co. 103
Enthone Company, The 1

Ferbert-Schorndorfer Co. 85
Ferro Enamel Corp. 71

G. M. Mfg. Co. 113
George Co., The P. D. 14

Hammond Chemical Service 118
Hilo Varnish Corp. 93
Horn Company, A. C. 95

Illinois Bronze Powder Co. 73
Industrial Chemical Development Corp. 4
Industrial Tape Corp. 10-11
Infra-Red Engineers & Designers 115

Kirk & Blum Mfg. Co. ..... Back Cover
Koch Sons, Inc., George 65

Lawrence-McFadden Co. 111
Lilly Varnish Co. ..... Front Cover

Maas & Waldstein Co. 83
MacDermid, Incorporated 37
Magnus Chemical Co. 16
Magnuson Products Corp. 115
Mahon Co., The R. C. 53
Mearl Corporation, The 21
Meyercord Co., The 80-81
Miracle Paint Rejuvenator Co. 115
Murphy Finishes Corp. 45

Neilson Chemical Co. 39
New Wrinkle, Inc. 49
New York Woodfinishers Supply Co. 79
North Amer. Elec. Lamp Co. 118

O'Brien Varnish Co. 20

Paasche Airbrush Co. 15
Perfection Paint & Color Co. 7

Randolph Finishing Products Co. 101
Rayon Processing Co. of R. I. 111
Reliance Varnish Co. 69
Rockford Varnish Co. 75
Roxalin Flexible Finishes, Inc. ..... Second Cover

Sander Corporation, The Monroe 67
Sherwin-Williams Co. 54-55
Solvents Recovery Service 118
Standard Industrial Products, Inc. 110
Standard Varnish Works 91
Stanley Chemical Co. 87
Sterling Tool Products Co. 120
Stille-Young Corp., The 9
Sun Oil Co. 17

United Lacquer Mfg. Corp. 43

Valvoline Oil Co. 113
Varnish Products Co. 109

Walker Co., H. V. 18
War Loan Drive 119
Watson-Standard Co. 105
Wilson-Imperial Co. 35

Yarnall Paint Co. 107

Zapon Division—Atlas Powder Co. 50-51

BOOKS On Finishing Available

"CHEMICAL FORMULARY" (Vol. VI)	$6.00
"THE MIXING OF COLORS AND PAINTS"	2.00
"FINISHING METAL PRODUCTS"	3.50
"LACQUER AND SYNTHETIC ENAMEL FINISHES"	5.50
"SPRAY PAINTING—Industrial and Commercial"	1.50
"PRACTICAL FURNITURE FINISHING"	1.25
"FURNITURE FINISHING" (543 Pages)	4.00
"NATIONAL PAINT DICTIONARY"	7.50
"PYROXALIN ENAMELS AND LACQUER" (253 pages)	3.50
PAINT LABORATORY NOTEBOOK	2.75

Cash Must Accompany Orders

INDUSTRIAL FINISHING, 1142 N. Meridian St., Indianapolis 4, Indiana

Booklets Catalogs Circulars

Electroplating Bulletin

If you are interested in electroplating, send for a copy of the 4-page (8½x11-in.) bulletin which illustrates and describes the Udylite fully automatic plating machine. Write to the Udylite Corp., 1651 E. Grand Blvd., Detroit 11, Mich.

Industrial Adhesive Tape

A colorful folder illustrating and listing a few of the 1001 uses of waterproof cloth tape, masking tape, self-stik stencils, etc., can be obtained free by writing Mystik Adhesive Products, 2635 N. Kildare Ave., Chicago 39, Ill.

Finishers' and Refinishers' Catalog of Supplies

A new 28-page catalog and price list of materials and supplies for finishers and refinishers is offered by Star Chemical Co., Inc., 2533 S. Pulaski Rd., Chicago 23, Ill. The last two pages contain an alphabetical index of the contents, ranging from Abrasives to Wood Stains.

Deburring and Smoothing Metal Surfaces

A revolutionary new method of deburring and smoothing metal parts and castings is described and illustrated in a new folder entitled, "Slash Time and Cost with Roto-Finish." The booklet has just been published by The Sturgis Products Co., Sturgis, Mich., owners of the potential Roto-Finish process, and shows how hand methods

DUST AND LINT
ARE THEY SLOWING UP YOUR PRODUCTION? IF SO,
Detroit Handy Tac Rags
will solve your problem. Remain tacky indefinitely. Non-combustible. At your Paint Dealer or write to Manufacturer.
DETRO SALES CO.
418 NORTH SAN PEDRO STREET
LOS ANGELES 12, CALIF.

POSITION AVAILABLE AS—
DIRECT FACTORY FIELD REPRESENTATIVE

Manufacturer of industrial equipment seeking services of man with practical experience in all types finishing and coating processes. Position requires individual with practical background involving good working knowledge of finishing materials and their application under present day methods. Ample training provided. Excellent opportunity for steady employment at attractive salary. Must be willing to travel. While facilities now largely devoted to war effort, this is not an opportunity created by or dependent on war work. Interview can be arranged by submitting full information together with recent photograph to IF-140, care INDUSTRIAL FINISHING, Indianapolis 4, Ind.

METAL CLEANER—SALES SERVICE MEN WANTED

We have several excellent opportunities available now and postwar in this rapidly expanding department of our business.

Apply by letter giving details of your experience.

THE COWLES DETERGENT CO.
7016 Euclid Ave., Cleveland 3, O.

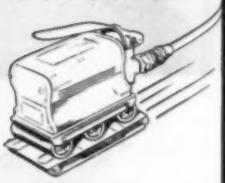
Now Available . . .

STERLING SPEED-BLOC SANDER!

Sterling Speed-Bloc Sander is ideal for dry and wet sanding. Air driven, it is absolutely safe to use with volatile liquids.

Now you can get high-speed production sanding at low cost! The Sterling Speed-Bloc Air Driven Sander produces a smooth, uniform surface in less than ½ the time required by hand sanding.

The Speed-Bloc is available for prompt delivery . . . now is the time to benefit from its time and money-saving advantages.



Use it on METAL

Use it on FABRICS—PLASTICS AND COMPOSITION

Eliminate tedious hand sanding! Use the Sterling Speed-Bloc for sanding, lapping or polishing!

Use it on WOOD

The Speed-Bloc is simple to operate—hand merely guides the machine. Sanding pad oscillates at a high speed with a 5/32" stroke, making over 3000 back-and-forth strokes per minute. Over 19,000 Sterling Speed-Bloc Sanders now used by auto shops, aircraft plants, furniture manufacturers and a host of other industries. Ask your local distributor for a free demonstration or write

STERLING TOOL PRODUCTS COMPANY

365 East Ohio Street — Chicago 11, Illinois

Los Angeles and Toronto

When Victory comes...

and the boys begin to shed the khaki to don overalls—you'll find Advance ready to meet your finishing needs. We are not neglecting or slackening our war efforts (and we won't so long as the war lasts) but at the same time we are looking and planning to the future. We'll be ready when the time comes—will you? If you should need finishing help then, call on us.

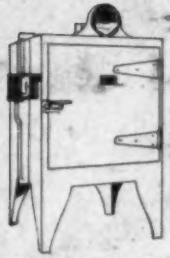
ADVANCE PAINT COMPANY

Manufacturers of Wood & Metal Finishing Materials

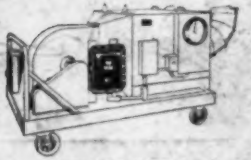
INDIANAPOLIS, INDIANA

INDUSTRIAL OVEN

"Custom-Built" B
ENGINEERING SPECIALIST



LABORATORY OVEN
Designed for use in Laboratories for research and test work. Electric heat automatically controlled and timed.



PORTABLE ELECTRIC DRYER
automatically controlled designed especially for use in the Rayon and Chemical Industries.

Kirk & Blum Industrial Ovens are designed and installed to meet *individual requirements* in product finishing.

The long background of experience, expert knowledge, and scientific approach of the Kirk & Blum Engineering staff is your positive assurance of high oven efficiency and economical operation.

Kirk & Blum specializes in oven installations of *all types* — continuous conveyor drying and baking ovens, core baking ovens, laboratory ovens, etc. These systems are guaranteed to speed production, cut fuel and labor costs, conserve floor space, and promote *maximum safety*.

Write for Booklet, *"Industrial Ovens,"* giving full information. Address The Kirk & Blum Manufacturing Co., 2831 Spring Grove Ave., Cincinnati, Ohio.

KIRK AND BLUM